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ABSTRACT

A third-party evaluation was conducted of the International Masonry Institute's Regional Training System. Data were collected from the following sources: the enrollment database; surveys of 244 participants (68 prejob apprentices, 8 early leavers, 48 completers, 35 journeyworkers, 23 business agents, 23 craft instructors, 20 cross-craft, and 19 signatory contractors); personal interviews with 81 contractors, trainees, and on-the job graduates; site observations at 3 training centers; and program records. Some of the findings were as follows: (1) 1,228 trainees participated; (2) women accounted for only 3.3% of trainees, nearly 3 of 4 were white, and of nonwhites, over 50% were black; (3) 2 out of 3 enrollees completed the program, Hispanics' noncompletion rate was 17% lower than whites', blacks' noncompletion rate was 22% higher than whites'; (4) considerable disparity existed in program offerings across regions; (5) funds for prejob training exceeded those for other training by as much as 6 to 1; and (6) the existing program was serving trainees from multiple states, as intended. The regional training delivery system was shown to be effective. However, job placement was less than anticipated, transition to the job posed difficulties, and some apprentices complained that the training did not reflect job conditions. A more standardized curriculum was recommended, and attention to equality in minority and gender representation was needed. (Detailed survey results by group are appended.) (KC)

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ED 376 322

FINAL EVALUATION REPORT

for

Regional Training Demonstration Project

Submitted to

International Masonry Institute

by

Donald W. Drewes, PhD
Conserva, Inc.

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CHAPTER 1

OVERVIEW

PURPOSE

This document is submitted as a formal project deliverable as described in Chapter 6 of the International Masonry Institute, Application for Federal Assistance, Cooperative Demonstration Program (Building Trades) CFDA No. 84.199C. The intent is to present the results of the third-party evaluation conducted in accordance with the previously submitted deliverable titled "Evaluation Plan for Regional Demonstration Project" (July 1993).

ORGANIZATION

In accordance with the Evaluation Plan, the evaluation design focuses on process, product and impact activities. As specified in the Data Analysis and Reporting Plan (Evaluation Plan, Section 6), evaluation data is analyzed, synthesized and formatted so as to answer the implied evaluation questions posed in the Evaluative Requirements Specification Plan (Section 1). To facilitate clarity and presentation of evaluative data, the data is organized to provide documented information about regional training as a demonstration model with respect to (a) the product produced, (b) the impact created, and (c) the process followed. This order deviates from that proposed in the Evaluation Plan only to the extent that data on the process followed is presented last instead of first as initially proposed. This report concludes with a section devoted to a summary assessment of the overall effectiveness and efficiency of the regional demonstration training model as articulated and implemented during the course of the grant. Data too voluminous to be included in the report proper is presented in a series of appendices.

DATA COLLECTION PROCEDURES

Evaluative data for this report were obtained from the following sources:

- IMI program enrollment/completion database
- Sample survey results
- Personal interviews
- Site observations
- Project source records/documents

Each data source will be subsequently described.

IMI PROGRAM ENROLLMENT/COMPLETER DATABASE

Records of all program enrollees served by the project were maintained by IMI at their national office. Raw data were obtained from field program sites, edited and entered into a dBASEIII program. The structure of a typical database record is shown in Table 1.1.

PROGRAM ENROLLMENT/COMPLETION DATA STRUCTURE

Table 1.1

Field Name
Last name
First name
Middle initial
Address
City
State
ZIP Code
Phone #
Social Security #
BAC #
Identification #
Date of birth
Race
Primary trade
Program name
Instructor
Date enrolled
Date completed
Training center
Training region

PROGRAM ENROLLMENT/COMPLETION DATA STRUCTURE Table 1.1
Sex
Comment
Enrolled in pre-job tile?
Enrolled in pre-job brick?
Enrolled in pre-job terrazzo?
Enrolled in pre-job PCC?
Enrolled in advanced PCC?
Enrolled in brick specialty?
Enrolled in tile/marble/terrazzo specialty?
Enrolled in cross-craft training?

The IMI Program Enrollment/Completion Database served as the primary source of product evaluation results as described in Chapter 2.

After final entry and editing, the dBASE file was obtained from IMI and converted to KMAN format. The converted database file was subsequently edited to remove any data entry discrepancies that might result in spurious results. In spite of these efforts, some residual discrepancies remained. These discrepancies caused only slight inconsistencies in cross-tabulation results. However, such inconsistencies were of such small order of magnitude that they can be safely ignored. As is generally the case in field-generated data, missing values were encountered. Missing values when found in tabular cross classifications were indicated by an "n.e.c." category to indicate that these data were not elsewhere classified in the tabular categories.

SURVEY RESULTS

As indicated in the Survey Sampling Plan (Evaluation Plan, Section 3, 1993) the following populations were surveyed:

- Pre-Job Apprentice Trainees
- Pre-Job Apprentice Early Leavers
- On-the-Job Apprentices

- Journeymen
- Cross-Craft Advanced Journeymen Trainees
- Craft Instructors
- Business Agents
- Contractors

Sampling frames were drawn from the IMI Program Enrollment/Completer Database and from BAC internal databases. Sampling frames for (a) Pre-Job Early Leavers, (b) Pre-Job Completers/On-the-Job Apprentices, and (c) Cross-Craft Advanced Journeymen Trainees were constructed from the IMI Program Database. BAC internal databases were used to create sampling frames for journeymen, business agents and signatory contractors. IMI internal records of instructors who have taught at least one DOE-supported program constituted the instructor sampling frame. All pre-job apprentice trainees enrolled as of September 1, 1993 were defined to constitute the Pre-Job Apprentice Trainees sampling frame.

The desired sample sizes as described in the Survey Sampling Plan were increased by 50 percent to allow for anticipated nonrespondents. Samples for each of the populations were proportionately drawn from their respective sampling frames in a manner designed to ensure equal interval coverage throughout the sampling frame listing. With the exception of Pre-Job Apprentice and Cross-Craft Advanced Journeymen Trainees, mailing lists were computer generated using a proportionate sampling algorithm. Each survey package contained: (a) letter of introduction, (b) appropriate instructions, (c) the survey form designed explicitly for that group, and (d) a pre-addressed, stamped return envelope. Surveys for the Pre-Job Apprentice Trainees and the Cross-Craft Advanced Journeymen Trainees were bulk mailed to those training centers with ongoing programs. Instructions were provided and the instructors assigned the responsibility of disseminating and collecting completed survey questionnaires.

After an interval of approximately four weeks to allow for normal survey return, follow-up activities were initiated. A computer listing was provided to IMI of all Pre-Job Apprentice Trainees, Pre-Job Apprentice Early Leavers, Pre-Job Completers/On-the-Job Apprentices, and Cross-Craft Advanced Journeymen Trainees whose survey returns were outstanding as of that date. Lists were further sorted by training centers and a list of delinquent respondees sent to each training center with instructions to contact each delinquent respondee by phone and urge him/her to respond. Because of the magnitude of the numbers involved and other political considerations, no follow-up activities were initiated for Journeymen, Business Agents or Signatory Contractors.

The desired sample size and the actual sample size obtained for each of the eight populations sampled are shown in Table 1.2.

DESIRED AND ACTUAL SAMPLE SIZE BY POPULATION GROUP

Table 1.2

Population Group	Desired Sample Size	Actual Sample Size	Actual/Desired
Pre-job apprentices	100	68	.68
Pre-job early leavers	75	8	.11
Completers/on-the-job	150	48	.32
Journeymen	250	35	.14
Business agents	50	23	.46
Craft instructors	50	23	46
Cross-craft	75	20	.27
Signatory contractors	50	19	.38
TOTAL	800	244	.30

As shown in Table 1.2, total sample returns accounted for slightly more than 30 percent of the desired number ranging from a low of 11 percent to a high of 68 percent. One of the more disappointing results was the relatively low rate of return for the Journeymen sample. One plausible explanation is that BAC journeymen may have a low tolerance for surveys and/or may not have a strong interest in skills upgrading.

PERSONAL INTERVIEWS

Personal interviews were obtained in conjunction with site visits to the regional training centers and the IMI national office. Site visits to regional training centers were conducted according to the following schedule:

- Chicago, IL: Monday, October 18 through Friday, October 22, 1993
- Houston, TX: Monday, November 15 through Friday, November 19, 1993
- Hightstown, NJ: Monday, December 13 through Friday, December 17, 1993

Site visitations were conducted in accordance with prearranged agendas. The first day (Monday) was generally reserved for a meeting with the training center coordinator,

a site tour, interviews with instructor(s), and instructional observation. Interviews with pre-job trainees and pre-job completers were tentatively scheduled for the second day activities. Interviews with cross-craft trainees and journeymen were scheduled for Wednesday, with interviews with business agents and contractors scheduled for Thursday (day four). The last day (Friday) was tentatively reserved for interviews with school personnel and community-based organizations. The above agenda was modified when necessary to accommodate the availability of local personnel. Prior to each visitation, the regional coordinator was contacted and asked to (a) identify potential candidates for interviewing and (b) make initial contacts with selected interviewees and inform them of the site visitation and its purpose. Interviews with pre-job trainees and cross-craft trainees were generally conducted on the site premises. Interviews with pre-job completers were limited to those completers who were currently employed and working on local job sites. Journeymen were to be selected so as to represent a random cross-sectioning of local BAC membership. In all instances, interviewing was conducted using the appropriate protocols, examples of which are contained in the Evaluation Plan (Appendix B).

The distribution of interviews conducted across population groups is presented in Table 1.3.

INTERVIEWS CONDUCTED BY POPULATION GROUP

Table 1.3

Population Group	Number of Interviews
Masonry contractors	8
Public agencies	5
Business agents	6
Apprentice coordinators	3
Craft instructors	4
Administrators	6
Journeymen	5
Cross-craft trainees	4
Pre-job apprentices	28
On-the-job apprentices	12
TOTAL	81

The number of actual interviews (81) exceeds the desired sample size (75) as stated in the Interviewee Selection Plan (Evaluation Plan). Although exceeding the overall quota, desired sample sizes were not always achieved for individual population groups.

Significantly fewer journeymen and cross-craft trainees were interviewed than originally anticipated. This is in part accounted for by the limited availability of cross-craft trainees, difficulties associated with locating cross-craft trainees who were currently employed in the local area, and the limited contacts that regional training personnel had with local BAC journeymen. Although not originally scheduled, interviews were conducted with apprenticeship coordinators in two of the three regions visited (Houston had no apprenticeship coordinator).

SITE OBSERVATIONS

Major reliance was placed upon the observational technique as a means of gathering information during the site visitations. The focus of the observation and exemplary information obtained were as follows:

- Center
  - overall appearance
  - attractiveness of site
  - location/accessibility
  - site security
  - immediate environment
- Shop
  - size
  - layout
  - work organization
  - amount of total space
  - appearance
  - evidence of order/discipline
  - free space
  - range and complexity of training modules
- Classroom
  - size
  - layout
  - environment
  - extent of instructional materials
  - availability of instructional materials
  - evidence of classroom usage

- Office
  - computer facilities
  - linkages between office shop and classroom
  - staffing
  - auxiliary functions. e.g., masonry library
  - general appearance

Observational data was obtained by a combination of walking around and direct examination of specific activities/processes. Walking around as an observational technique was particularly useful in forming an overall impression of the training center as an operating system with shop, classroom and office sub-functions. Focus on a specific object/activity/process allows for more detailed examination within the larger context of the more general impressionistic formation. Detailed examination focused on direct observation of students performing a singular task, an act or instance of instructor/student interaction, specific instructional materials or other evidence such as a locked door between office and shop or the storage of materials in a classroom indicating less intensive use for the original purpose. Because of the relative infrequency of formal classroom activities, few opportunities existed for direct observation of the classroom processes. However, it was possible in one center visitation to observe a brief sampling of ongoing instruction in related training.

PROJECT INTERNAL RECORDS/DOCUMENTATION

The remaining source of evaluative data used in this report is the internal documentation produced in the course of the project. This internal documentation ranging from informal memos to formal sub-contractors reports provides a rich information source as to project activities, procedures and products. This source is particularly useful in providing insight into the administrative and control processes used to monitor and manage project progress.

CHAPTER 2

PRODUCT EVALUATION

Product evaluation deals with the tangible accomplishments achieved by the demonstration project during its funding span. Project accomplishments include participants served during the course of the project, tangible products produced, services provided, and resources expended. Assessment of product quality will be based upon a combination of objective and subjective criteria. Because the project is a field demonstration grant, little opportunity existed for assessment of product quality under controlled conditions. Under these pragmatic constraints, the role of product evaluation is primarily to document achievement and to provide an interpretative context to facilitate interpretation of observed results.

PARTICIPANTS SERVED

The number of participants served is measured by total program enrollment. Total program enrollment is further differentiated according to whether the enrollment represents an unduplicated or duplicated count. Unduplicated enrollment is a count of the number of individuals who have enrolled in one or more training programs. A trainee is counted only once regardless of whether he/she enrolled in more than one program. In contrast, duplicated enrollment counts the trainee every time he/she enrolls, whether it is an enrollment in a different course or a repeat enrollment in the same course at a different time. Operationally, unduplicated enrollment counts were obtained by counting the number of records in the IMI enrollment system having different name or social security identification numbers. Duplicative enrollment count was taken to be equivalent to the number of records in the system. The total enrollment count, both duplicated and unduplicated, is given in Table 2.1.

TOTAL DUPLICATED AND UNDUPLICATED ENROLLMENT COUNTS

Table 2.1

Enrollment Type	Enrollment Count
Duplicated	1493
Unduplicated	1228

The interpretation of Table 2.1 is that the demonstration grant served 1493 program enrollees of which 1228 were unique individuals. On the average, each trainee served enrolled in 1.22 programs. Multiple enrollments can be accounted for by enrollments in separate programs or by enrollment in the same program at a later time.

As shown in Table 2.2. enrollment counts vary considerably across training regions.

TOTAL DUPLICATED AND UNDUPLICATED ENROLLMENT COUNT AND AVERAGE NUMBER OF PROGRAMS PER ENROLLEES BY TRAINING REGIONS

Table 2.2

Region	Duplicated	Unduplicated	Duplicated/Unduplicated
Mid-Atlantic	673	538	1.25
Midwest	320	307	1.04
New England	302	188	1.61
Southwest	88	84	1.05
West	110	109	1.01
TOTAL	1493	1226	1.22

Two training regions. Mid-Atlantic and Midwest. account for nearly two-thirds of the duplicated and unduplicated enrollment counts. This can most likely be accounted for by the disproportionate share of BAC membership across regions and/or relative differences in economic activity. The average number of programs per enrollee shows considerable variation. with the New England region having the highest average followed by the Mid-Atlantic region. The three remaining regions show little propensity for multiple program enrollment. A possible explanation is that a greater variety of advanced training opportunities for enrollment after completion of basic courses exist in the Mid-Atlantic and New England regions than in other parts of the country.

The distribution of trainees served across training center locations is given in Table 2.3.

UNDUPLICATED ENROLLMENT COUNT BY TRAINING CENTER

Table 2.3

Training Center	Unduplicated Enrollment
Albany, NY	19
Boston, MA	188
Buffalo, NY	59
Carol Stream, IL	33
Cardiff, NY	38
Chicago, IL	92

UNDUPLICATED ENROLLMENT COUNT BY TRAINING CENTER Table 2.3	
Coopers Plains, NY	8
Detroit, MI	92
East Orange, NJ	24
El Monte/Industry, CA	33
Ft. Wayne, IN	9
Glens Falls, NY	11
Hightstown, NJ	118
Houston, TX	69
Las Vegas, NV	76
Miami, FL	16
Milwaukee, WI	22
Philadelphia, PA	25
Piscataway, NJ	17
Plattsburg, NY	22
Rome, NY	36
St. Louis, MO	33
Syracuse, NY	14
Toms River, NJ	12
Teanick, NJ	13
Trenton, NJ	7
Westmont, IL	26
Woodside, NY	114
TOTAL	1226

Training was provided at 28 training center sites, with each site on the average serving 43.8 persons. Thirteen of the 28 training centers had 25 or fewer enrollees, with only five centers serving 90 or more enrollees. It should be noted that the training system can be characterized as having essentially seven (7) regional sites (Boston, Chicago, Detroit, El Monte/Industry, Hightstown, Houston, Woodside). The remaining twenty-one sites are temporary satellite locations.

Table 2.4 displays the duplicate enrollment count across training program areas.

DUPLICATE ENROLLMENT COUNT BY TRAINING PROGRAM AREA

Table 2.4

Program Area	Duplicate Enrollment
Pre-job tile	19
Pre-job brick	352
Pre-job plaster	15
Pre-job terrazzo	14
Pre-job PCC	32
Advanced PCC	127
Brick specialties	565
Plaster specialties	23
Tile/marble/terrazzo specialties	160
General related	186
TOTAL	1493

Pre-job brick and brick specialty programs account for over 60 percent of the total duplicated enrollment. Pre-job apprenticeship program totals 432 out of the total 1493, thereby accounting for slightly less than 30 percent of the total duplicated enrollment. In comparison, 59 percent of those served were in advanced specialty training areas as opposed to slightly more than 12 percent in general related training areas. Given the depressed state of the construction industry during the course of the project, the preponderance of training effort placed upon advanced specialty training is not surprising.

A similar conclusion is supported by examination of the enrollment by training type as shown in Table 2.5.

RAW AND RELATIVE DUPLICATE ENROLLMENT COUNTS BY TRAINING TYPE

Table 2.5

Training Type	Duplicate Enrollment	Relative Frequency
Pre-job	372	.25
Upgrading/Related	825	.55

RAW AND RELATIVE DUPLICATE ENROLLMENT COUNTS BY TRAINING TYPE Table 2.5		
Cross-craft	191	.13
n.e.c.	105	.07
TOTAL	1493	1.00

Upgrading and related instruction account for over 55 percent of program enrollment as compared with 25 percent for pre-job apprentice programs and nearly 13 percent for cross-craft training. An important point in the interpretation in Table 2.5 is to note that cross-craft training is not solely a function of course content. Determination of whether training is cross-craft is a joint function of the content of the training and the primary craft designation of the trainee. For example, a pre-job brick apprentice program represents cross-craft training for a trainee whose primary craft designation is plastering, but is not cross-craft training for a trainee whose primary craft designation is bricklaying. The classification problem is further compounded by the fact that multiple primary craft designations are quite common. The operational rule used in Table 2.5 was that an enrollee was considered to be cross-craft if he/she did not carry at least one primary craft designation consistent with course content. Fortunately, primary craft designations were available for the majority of enrollees. The not-elsewhere-classified (n.e.c.s) resulted from unknown primary craft designations, thereby precluding classification. Related instruction programs were not considered to represent cross-craft training since they applied to all rather than any single craft, and therefore were classified with upgrading. Results were consistent with Table 2.4 in that they supported the conclusion that the majority of project training efforts was devoted to upgrading and related instruction with the preponderance being devoted to upgrading. Pre-job apprentice enrollees dropped from 432 in Table 2.4 to 372 in Table 2.5. The difference of 60 can be attributed to cross-craft trainees enrolled in pre-job programs.

Difficulties in attracting women into the trades are documented in Table 2.6.

RAW AND RELATIVE UNDUPLICATED ENROLLMENT BY GENDER Table 2.6		
Gender	**Unduplicated Enrollment**	**Relative Frequency**
Male	1188	.97
Female	40	.03
TOTAL	1228	1.00

The fact that women accounted only for 3.3 percent of the total individuals served by the

project emphasized the difficulties of attracting women into the nontraditional occupations.

Duplicated and unduplicated enrollment counts by race and ethnicity are shown in Table 2.7.

DUPLICATED AND UNDUPLICATED ENROLLMENT COUNT BY RACE AND ETHNICITY

Table 2.7

Race/Ethnicity	Duplicated Enrollment	Unduplicated Enrollment
Asian	7	6
Black	192	163
Hispanic	118	109
Native American	5	5
Other	2	2
White	1131	909
n.e.c.	38	34
TOTAL	1493	1228

As shown above, whites account for nearly three out of four duplicated and unduplicated enrollments. Of the nonwhite enrollees, blacks account for over 50 percent followed by hispanics at 34 percent, with the remainder distributed across Asians, Native Americans and others.

The relative distribution of duplicated enrollment by racial/ethnic categories is given for each program area in Table 2.8.

RACIAL/ETHNIC ENROLLMENT PERCENTAGE BY PROGRAM TYPE

Table 2.8

Program Type	Asian	Black	Hispanic	Native Amer.	Other	White	n.e.c.
Pre-job tile		.105	.368			.526	
Pre-job brick	006	.219	.125	.008	.006	.625	.011
Pre-job plaster			.067			.933	
Pre-job terrazzo		.071	428			.500	

RACIAL/ETHNIC ENROLLMENT PERCENTAGE BY PROGRAM TYPE Table 2.8							
Pre-job PCC		.125	062	031		656	.125
Advan. PCC	.016	.142	.118			.724	
Brick spec.	.003	.108	051	.002		.816	.019
Plaster spec.		.134	.217			.652	
T/M/T spec.		.100	025			.843	.031
General related	005	.054	027			.839	.075

As previously indicated, the majority of trainees served were white, with the proportion ranging from .500 for pre-job terrazzo to .933 for pre-job plastering. Nearly 43 percent of pre-job terrazzo enrollment and nearly 37 percent of pre-job tile enrollment were hispanics. This is apparently due to the centralization of tile/terrazzo training in California, which has a large hispanic population. Nearly one in every four pre-job brick apprentices was black. As can be noted in Table 2.8, the largest percentage of black enrollment occurs in pre-job brick programs. The fact that the percentage of black enrollment in pre-job brick (.219) is double that of the black enrollment in advanced brick specialty programs (.108) augers well for BAC's effort to improve minority representation. Interestingly enough, brick is the only craft area where black enrollment in pre-job programs exceeds their proportionate enrollment in advanced programs. This finding tends to support the contention that bricklaying has historically been more supportive of black craftspeople. The increased proportion of enrollment in pre-job programs over advanced specialty programs also holds true for hispanics in the brick and tile/terrazzo craft areas.

Shifting emphasis now, program noncompletion rates by program type are shown in Table 2.9.

PROGRAM NONCOMPLETERS AND NONCOMPLETION RATES BY PROGRAM TYPE Table 2.9		
Program Type	**Non-completers**	**Non-completion Rate**
Pre-job tile	6	.32
Pre-job brick	74	.21

PROGRAM NONCOMPLETERS AND NONCOMPLETION RATES BY PROGRAM TYPE Table 2.9		
Pre-job plaster	0	0
Pre-job terrazzo	2	.14
Pre-job PCC	9	28
Advanced PCC	68	53
Brick specialties	204	.36
Plaster specialties	9	.39
Tile/Marb/Terraz Specialties	59	.37
General related	61	.31
TOTAL	492	.33

Out of the total of 1493 duplicated program enrollments, 492 resulted in program noncompletion, giving an overall project noncompletion rate of .329. Alternatively stated, two out of every three enrollees either completed the program or were currently enrolled in ongoing programs at the time of project cessation. The noncompletion rate for pre-job brick programs was significantly lower (better), with only about one out of every five enrollments resulting in noncompletion. Noncompletion rates for advanced training courses ranged from a low 36 percent for brick specialties to a high of 53 percent for advanced PCC specialty training. Combining training areas into pre-job, advanced and general-related areas shows a 21 percent noncompletion rate for pre-job programs, a 33 percent noncompletion rate for general related programs as compared with a 39 percent noncompletion rate for advanced programs. The higher noncompletion rate for advanced training programs is to be expected if one subscribes to the hypothesis that journeymen are more likely to seek advanced training during periods of unemployment and thus will drop out of training more readily as employment opportunities increase. The hypothesis that those enrolled in advanced training programs are more likely to drop out is supported by the data which show that advanced training accounts for 69 percent of the dropouts, yet accounts for only 58 percent of total duplicate enrollment.

Program noncompleters by racial/ethnic categories is the subject of Table 2.10.

PROGRAM NONCOMPLETERS AND NONCOMPLETION RATES BY RACE AND ETHNICITY Table 2.10		
Race/Ethnicity	**Non-completers**	**Non-completion Rate**
Asian	3	.43
Black	76	.40

PROGRAM NONCOMPLETERS AND NONCOMPLETION RATES BY RACE AND ETHNICITY Table 2.10		
Hispanic	32	27
Native American	2	40
Other	---	---
White	368	32
n.e.c.	11	29
TOTAL	492	33

The program noncompletion rate for white trainees was .325 as opposed to .342 for the nonwhite trainees. Within the nonwhite trainees, the noncompletion rate for black (.40) was significantly higher than that for hispanics (.27). Stated another way, the noncompletion rate for the hispanics was 17 percent lower than that of the whites, whereas the noncompletion rate for the blacks was 22 percent higher than that of the white trainees.

Noncompletion rates by race/ethnicity and program type is presented in Table 2.11.

PROGRAM NONCOMPLETION RATES BY RACE/ETHNICITY AND PROGRAM TYPE Table 2.11							
Program Type	**Asian**	**Black**	**Hispanic**	**Native Amer.**	**Other**	**White**	**n.e.c.**
Pre-job brick	.50	.30	.20	.00	.00	.18	.25
Pre-job tile	---	.50	.29	---	---	.30	---
Pre-job plaster	---	---	.00	---	---	.00	---
Pre-job terrazzo	---	.00	.00	---	---	.29	---
Pre-job PCC	---	.25	.00	1.00	---	.14	1.00
Other programs	.40	.47	.36	1.00	---	.37	.20
TOTAL	.43	.40	.27	.40	---	.32	.29

The above table allows a direct comparison of program noncompletion rates for pre-job versus advanced and general-related programs. The interpretation of the above table is that for pre-job brick, for example, 18.2 percent of the white enrollees failed to complete the program as compared with 20.4 percent of hispanics and 30 percent for blacks. Zero table entries indicate zero dropout rates (100 percent completion) as opposed to no program enrollment for that specific program and racial/ethnic cell entry. For pre-job programs, noncompletion rates tend to be significantly higher for blacks than for whites and somewhat higher than the noncompletion rate of hispanics. Noncompletion rates for blacks in advanced programs approaches nearly 50 percent as compared with 36 percent for hispanics and 37 percent for whites.

Average age of trainees served by the project is shown in Table 2.12.

AVERAGE AGE AND STANDARD DEVIATION OF PROJECT TRAINEES

Table 2.12

Average Age	28.6
Standard Deviation	8.2

The age of the typical project trainee as of the date of enrollment in his/her first program is 28.6 years. This is considerably older than would be expected if the project were serving primarily pre-job apprentice trainees. In that case, the average age would more likely be in the lower twenties.

Table 2.13 shows average age of project trainee by gender.

AVERAGE AGE OF PROJECT TRAINEES BY GENDER

Table 2.13

Gender	Average Age
Male	28.6
Female	32.9

As shown in the above table, the typical female trainee is over four years older than the typical male trainee. A possible explanation is that females make the decision to enter nontraditional occupations later in their careers, possibly after failing to find satisfaction in more traditional female occupations.

Average trainee age by race is given in Table 2.14.

AVERAGE AGE OF PROJECT TRAINEES BY RACE/ETHNICITY Table 2.14	
Race/Ethnicity	**Average Age**
Asian	32.5
Black	30.2
Hispanic	27.2
White	28.6

Asians tend to be the oldest trainees with an average age of 32.5 and hispanics the youngest with an average age of 27.2. An interesting finding is that black trainees are, on the average, older than white trainees. Blacks, like women, tend to make the decision to enter the bricklaying trades at an older age. Although no supporting evidence is available, one might speculate that their career decision to enter the trades is conditional upon earlier career dissatisfactions.

The average age of program trainees by program area is depicted in Table 2.15.

AVERAGE AGE OF PROJECT TRAINEES BY PROGRAM AREA Table 2.15	
Program Area	**Average Age**
Pre-job tile	37.9
Pre-job brick	25.9
Pre-job terrazzo	35.8
Pre-job PCC	24.7
Advanced PCC	28.3
Brick specialties	29.9
Tile/marble/terrazzo specialties	29.4

It is interesting to note that of the five pre-job program areas, pre-job brick and pre-job PCC have the youngest enrollees on the average, 25.9 and 24.7 respectively. Enrollees in pre-job tile and pre-job terrazzo are considerably older than those in pre-job brick and pre-job PCC. A plausible explanation is that pre-job tile and pre-job terrazzo have a higher relative concentration of cross-craft trainees who tend to be older. With the exception of tile, marble and terrazzo programs, enrollees in advanced programs tend to be older than those in the pre-job program. Enrollees in the brick specialty programs tend on the average to be four years older than those in the pre-job brick programs. The fact

that the average age of pre-job programs ranges from 24.7 for PCC to 37.9 for pre-job tile indicates that the programs are geared more to young adults with eight to ten years career experience rather than youth making the transition from high school to the workplace.

Residential trainees are defined as those who because of the distances involved cannot commute from their homes to the training center. For those students, room and board were provided for the duration of the training program. The total number of residential trainees served by the project is shown in Table 2.16.

NUMBER OF RESIDENTIAL TRAINEES

Table 2.16

Type of Trainee	Number
Residential	121

The total number of residential trainees served (121) constitutes approximately 10 percent of the unduplicated enrollment count. This relatively low percentage of residential trainees served tends to limit operationally the scope of regional training centers to reasonable computing distances. Limitation of the effective service areas to commuting distances would seem to compromise seriously the argued effectiveness of a regional training model.

Distribution of residential trainees by training region is given in Table 2.17.

DISTRIBUTION OF RESIDENTIAL TRAINEES BY TRAINING REGION

Table 2.17

Training Region	Number
Mid-Atlantic	72
New England	11
Southwest	38
TOTAL	121

As evidenced by Table 2.17, residential training occurred in only three training regions, with the Mid-Atlantic region accounting for some 60 percent of the residential training effort.

Distribution of residential trainees by training center is given in Table 2.18.

DISTRIBUTION OF RESIDENTIAL TRAINEES BY TRAINING CENTERS Table 2.18	
Training Center	**Number**
Albany, NY	4
Buffalo, NY	11
Hightstown, NJ	17
Rome, NY	40
Boston, MA	11
Houston, TX	38
TOTAL	121

Residential training is confined to six training centers with two training centers, Rome, NY and Houston, TX, accounting for nearly two out of every three trainees.

Table 2.19 shows the distribution of residential trainees by programs.

DISTRIBUTION OF RESIDENTIAL TRAINEES BY PROGRAMS Table 2.19	
Training Program	**Number**
Advanced Brick	4
Blueprint Reading	1
Firebrick	10
Pre-job Brick	55
Pre-job PCC	24
Pre-job Plaster	13
Tile/Terrazzo Finisher	14
TOTAL	121

Pre-job programs accounted for more than three out of every four trainee residents, with pre-job brick having the largest number of residential trainees. The relatively small number of residential trainees found in advanced and general-related programs is to be expected since these programs tend to serve the more experienced apprentices and journeymen. These more experienced apprentices and journeymen are more apt to be actively employed or seeking employment and thus are unable or unwilling to make the

commitment implied by residential status.

Racial/ethnic distribution of the residential trainees is shown in Table 2.20.

DISTRIBUTION OF RESIDENTIAL TRAINEES BY RACE/ETHNICITY

Table 2.20

Race/Ethnicity	Number
Asian	0
Black	15
Hispanic	14
Native American	1
Other	1
White	85
n.e.c.	5
TOTAL	121

Whites account for some 70 percent of the residential trainees in comparison with nearly 74 percent of the total unduplicated enrollment. Blacks account for 12.4 percent of residential trainees in comparison with 13.4 percent of total unduplicated enrollment. Hispanics account for 11.6 percent of residential trainees in comparison with 8.9 percent in the enrollment population. The interpretation here is that whites and blacks are slightly under-represented in the residential trainee group, whereas hispanics are over-represented in terms of their representation in the total unduplicated enrollment.

Distribution of residential trainees by gender is shown in Table 2.21.

DISTRIBUTION OF RESIDENTIAL TRAINEES BY GENDER

Table 2.21

Gender	Number
Male	115
Female	6
TOTAL	121

Approximately 10 percent of male unduplicated enrollment is accounted for by residential trainees. This compares with 15 percent of the female total unduplicated enrollment accounted for by residential trainees. The data supports the hypothesis that women are

somewhat more likely to participate in a residential training program than are men. However, the total number of females enrolled is small (40) so that any gender base distinctions are rather tenuous.

The average age of residential trainees is shown in Table 2.22.

AVERAGE AGE OF RESIDENTIAL TRAINEES Table 2.22
Average Age: 27.2
Standard Deviation: 6.9

As indicated in Table 2.22, the average age of residential trainees is 27.2 years. Residential trainees tend on the average to be about 1.4 years younger than the average trainee served by the project.

PROGRAMS OFFERED

Duplicated program enrollment count is given in Table 2.23.

DUPLICATED ENROLLMENT BY PROGRAMS
Table 2.23

Training Program	Duplicate Enrollment
Advanced Brick/Block	20
Advanced Plastering	5
Advanced Brick	391
Advanced Brick-Cross Craft	85
Advanced PCC	127
Advanced Terrazzo	6
Advanced Tile	95
Basic Blueprint	16
Basic Plastering	4
Blueprint	61
Blueprint Reading	27
Blueprint/Math	12

DUPLICATED ENROLLMENT BY PROGRAMS Table 2.23	
Blueprint/Welding	9
Bricklaying	9
Carpet Laying	10
Cross-craft: Tile and Marble	21
Cross-craft: Upgrading	35
Firebrick	19
Cross craft: Firebrick	5
Fireplace	1
Intermediate Blueprint	2
OSHA Safety	2
Plastering	14
Pre-job Brick	352
Pre-job PCC	32
Pre-job Plaster	15
Pre-job Terrazzo	14
Pre-job Tile	19
Terrazzo	2
Tile Setting	11
Tile/Terrazzo Finishing	15
Welding	17
Welding I	29
Welding II	7
Cross-craft: Welding	4

Thirty-five (35) separate titles were used to describe project programmatic offerings. Program enrollments ranged from a low of 1 for fireplaces to a high 391 for advanced brick. The average number of enrollments per program is 42.6. This should not be confused with class size since programs may be offered multiple times. Review of program titles indicates a close similarity of program content, i.e., basic blueprint, blueprint, blueprint reading, blueprint/math, blueprint/welding. Also, several programs are listed as cross craft (CC). The problem with designating a program as cross craft is that

cross-craft training is more a function of the primary craft designation of the trainees than of the program content. Close similarity of program titles suggests a lack of programmatic standardization. In the absence of standardized programmatic guidelines, training programs, especially those for upgrading and general-related instruction, may be subject to regional differences in content and implementation.

Program offerings by training region are listed in Table 2.24.

PROGRAM OFFERINGS BY TRAINING REGION

Table 2.24

Mid-Atlantic	Midwest	New England	Southwest	West
Adv. Brick	Adv. Plastering	Adv. Brick	Pre-job Brick	Adv. Brick
Adv.Brick/Block	Adv.Brick	Adv. Brick-CC		Advanced Tile
Adv.Brick-CC	Adv.Brick-CC	Advanced PCC		CC-Tile/Marble
Advanced PCC	Advanced Terrazzo	Advanced Tile		Pre-job Terrazzo
Basic Blueprint	Advanced Tile	Pre-job PCC		Pre-job Tile
Blueprint	Basic Plastering			
Blueprint Reading	Blueprint			
Blueprint/Math	Blueprint/Welding			
CC-Upgrading	Bricklaying			
Firebrick	Carpet Laying			
Firebrick-CC	CC-Tile/Marble			
Intermediate Blueprint	Fireplaces			
OSHA Safety	Plastering			
Plastering	Pre-job Brick			
Pre-job Brick	Terrazzo			
Pre-job PCC	Tile Setting			
Pre-job Plaster	Welding I			
TL/TZ Finishing	Welding II			
Welding				

PROGRAM OFFERINGS BY TRAINING REGION Table 2.24				
Welding I				
Welding-CC				
21	18	5	1	5

Examination of Table 2.24 reveals considerable disparity in programmatic offerings across training regions. The Mid-Atlantic and the Midwest training regions offer 21 and 18 programs, respectively. The Southwest training region only offers a single program in pre-job brick. Both New England and the West training regions offer five programs covering both advanced and pre-job program areas. Differences in the regional economies and utilization of masonry products undoubtedly accounts for much of the disparity in program offerings.

The number of instructors per training region and the trainees/instructor ratios by training region are contained in 2.25.

INSTRUCTORS AND TRAINEES/INSTRUCTOR RATIO BY TRAINING REGION Table 2.25		
Training Region	**Number of Instructors**	**Trainees per Instructor**
Mid-Atlantic	29	22.9
Midwest	17	18.7
New England	5	17.8
Southwest	3	29.0
West	4	27.5
TOTAL	58	---

The Mid-Atlantic and the Midwest training regions account for nearly 80 percent of project instructor resources. This is not surprising considering the disproportionate amount of program offerings accounted for by these two training regions. However, when trainee enrollment is factored in, the results indicate that two training regions (Southwest and West) have a significantly higher trainee-to-instructor ratio than do the remaining three regions. The New England training region has the lowest trainee/instructor ratio (17.8) as compared to the Southwest, which has a ratio of 29.0. A partial explanation of this disparity may be that advanced level courses require more trainee-centered instruction. Since the preponderance of advanced programs tend to be concentrated in the East and Midwest, lower trainee/instructor ratios might be expected. On the other hand,

trainee instructor ratios in the high twenties seem excessive and may likely preclude the pre-job instructors from giving the individualized attention to the extent needed. In interpreting Table 2.25, it should be borne in mind that the New England training region has a large number of trainee records with unknown instructors. To compensate for the large number of blank instructor fields, only those records with designated instructors were used in the computation of the trainee/instructor ratios.

PROGRAMMATIC RESOURCES EXPENDED

Expenditure of federal project funds allocated by training region is reported in Table 2.26.

EXPENDITURE OF FEDERAL FUNDS BY TRAINING REGION

Table 2.26

Training Region	Dollar Expenditures
Mid-Atlantic	658,476.72
Midwest	716,673.79
New England	95,577.75
Southwest	165,879.06
West	124,293.08
Total Direct	1,760,900.40
General & Administrative	1,923,079.96
TOTAL	3,683,980.36

The most striking results of Table 2.26 is the noticeable deviation in training expenditures across training regions. The expenditure in the Midwest training region exceeds that in the New England region by nearly 7.5 to 1, whereas the duplicate enrollment is nearly equal (see Table 2.2). Expenditures in the Mid-Atlantic and Midwest regions are of a similar order of magnitude, yet the Mid-Atlantic region served more than twice as many enrollees as did the Midwest region. Of every federal dollar expended, only 47.8 cents was spent on direct training. The remainder was devoted to general and administrative expenses.

Allocation of federal direct training expenditures by program type and region is described in Table 2.27.

PROJECT DIRECT TRAINING EXPENDITURES BY PROGRAM TYPE AND TRAINING REGION Table 2.27		
Training Region	**Pre-job**	**Others**
Mid-Atlantic	476,598.94	181,877.78
Midwest	567,088.11	149,585.68
New England	64,492.63	31,085.12
Southwest	165,879.06	---
West	106,448.85	17,844.23
TOTAL	1,380,507.59	380,392.81

In Table 2.27, regional direct training expenditures are further subclassified into those for pre-job and other training programs. Other training programs include advanced as well as general and related instruction programs. In all regions, substantially more funds have been expended on pre-job training, which exceeds those funds spent for nonpre-job training by as much as six to one. More training dollars were expended in pre-job programs in the Midwest than in any of the other regions. For nonpre-job training purposes, the Mid-Atlantic region led with the greatest expenditures. In either case, the Mid-Atlantic and Midwest regions jointly accounted for 45 percent of the pre-job expenditures and 87 percent of the nonpre-job training expenditures.

The per enrollment training costs by training region and training type are shown in Table 2.28.

PER ENROLLMENT TRAINING COSTS BY TRAINING REGION AND TRAINING TYPE Table 2.28		
Training Region	**Pre-job**	**Other**
Mid-Atlantic	2853.88	359.44
Midwest	4362.22	787.29
New England	3582.92	109.45
Southwest	1974.75	---
West	3225.72	231.74
TOTAL	3195.62	359.88

This table illustrates the dramatic per-enrollee cost differential between pre-job and other nonpre-job training programs. The ratio of pre-job per-enrollment cost to nonpre-job per-enrollment cost ranges from 32.7 to 1 to 5.5 to 1, with an average of 8.9 to 1 difference.

Again, the Midwest training region exhibits the least differential between pre-job and nonpre-job training costs on a per-enrollment basis. The wide discrepancies in pre-job training costs indicate considerable variation in regional training efficiencies. These results suggest that considerable economy in training resources could be achieved by increased regional standardization.

Lack of further accounting detail precludes any additional breakout of project expenditures.

OUTREACH ACCOMPLISHMENTS

Project outreach accomplishments include: (a) creation of a national IMI minority outreach program and the hiring of a national outreach coordinator to administer the program, (b) development of race/gender study circle materials and the conduct of diversity study groups, and (c) outreach activities engaged in by IMI regional staff. Each of these activities will be subsequently described and assessed.

IMI National Outreach Program

Mr. Albert Weaver, former business agent and minority member of BAC Local 4 CA, was hired as the project's national outreach coordinator. Mr. Weaver reported to be engaged in a number of outreach activities including site visits to IMI regional training centers, attending symposiums and conferences, attending job fairs, recruitment of women and minorities for several of the IMI training centers, and conducting and assisting in minority/outreach study circle groups. No outcome-oriented data is available to permit an assessment of the effectiveness of these activities nor their contribution to minority outreach. Little written documentation exists with the exception of informal activity reports filed with the A. Philip Randolph Educational Fund as part of their sub-contractual responsibilities. Brief mention was made concerning a nationwide women and minority networking plan. A draft copy of this plan has reportedly been prepared but has yet to be released for general distribution.

Minority Outreach Study Circles

Project funds have been used to develop and field test an IMI study circle document titled "A Union for All Masonry Workers: Combating Racism and Sexism in the BAC." IMI has retained the services of Mr. Leonard Oliver of Oliver Associates to conduct a series of study circle meetings. Mr. Oliver has conducted study circle meetings in Los Angeles, Houston and at the 1992 and 1993 IMI Instructor Training Programs. These study group sessions were supposedly well received; however, independent data are not available to support these claims. From the race/gender study, Mr. Oliver has

condensed the materials to "Issues in Brief" discussion papers which are to be used at BAC chapter meetings. He is also developing these papers in single page format for job foremen and other job supervisors. IMI reportedly plans to conduct additional study circles involving trowel tradesmen, employers and union leaders at regional locations.

Outreach Activities of IMI National and Regional Staff

The IMI Midwest regional training director is a regular member of the Chicago area apprentice information council through which he seeks to publicize training opportunities available at the Chicago training facility and to develop outreach linkages. Through the apprenticeship information council, he is in regular bi-monthly contact with representatives of women in the trades; the urban league; the Midwest Women's Center; IL Department of Employment Security; the job corps; the Women's Bureau of the U.S. DOL; and the Kenwood Oakwood Project, a community-based pre-apprenticeship program. The Midwest director and/or his designees have represented the trowel trades at six high school career exploration fairs in the Chicago area in 1992 and again in 1993. The New Jersey Masonry Center was host to a field trip of the Atlantic City high school architectural construction class. The field trip included audio-visual presentation, discussion of masonry materials and techniques, and hands-on experience using materials and tools. Union training coordinators represented IMI at a 1993 workshop on employing women in the construction trades held at the Union County Vocational School. In New York state, the regional director joined local union leaders at two high school career exploration fairs in 1993. Outreach contacts and activities at the Houston center centered on the outreach promotion of a Latin American Demonstration Pre-Job Training Program initiated in the Houston center. Announcements were made to the Houston private industry council and the Harris County PIC. Announcements of pre-job training classes were mailed to all BAC Region 6 local unions and all major contractors in Region 6. National IMI staff joined the Houston regional director in a meeting with representatives of the Houston Community College and the State Bureau of Apprentice and Training to announce the Latin American class and to elicit support for the forthcoming minority program. Letters announcing the program were sent to all regional local unions, high schools and minority organizations. Absence of information as to the number of outreach activities initiated and the subsequent response rates precludes any assessment of the effectiveness of the outreach activities.

DISSEMINATION ACCOMPLISHMENTS

Project dissemination activities involve the development of a general training brochure, a training videotape, articles in trade publications, and answering personal inquires regarding project experiences. Fifty-thousand copies of a brochure titled "Masonry's Foundation for the Future: The IMI Regional Training System---A New Way to Train" were prepared and disseminated. Five-thousand copies of the brochure were

sent to each IMI regional training center with instructions to the regional directors to disseminate to their local constituencies as the need arose. The brochure presents a brief synopsis of the IMI training philosophy, presents a description of the regional training program, describes the concept of the pre-job apprenticeship training, and illustrates how pre-job training prepares for a life-long career in the masonry trades. The remaining copies have been retained by IMI national office for continuing distribution on an as-needed basis.

A videotape titled "Keeping Our Competitive Edge: Training the Best Hands in the Business" was professionally developed and selectively disseminated. Copies of the videotape were sent to each regional training center with instructions to utilize the media as a promotional tool for apprentice recruitment as well as for use with local BAC officials and contractors. Copies of the videotape were also sent to the BAC field staff as a means of promoting the apprenticeship concept. As a direct result, the videotape was reportedly shown to JTPA groups in Maine and Connecticut. In addition, the videotape was shown in a plenary session of the IMI Board and the IMI Instructor Training Program at the 1993 annual meeting. The videotape was also shown at the BAC annual meeting of local officers and the orientation session held for new BAC officers.

Project publicity materials were prepared and published in the March 1992 issue of IMI News and in the July 1992 issue of The Bricklayers Journal. Several newspaper articles were published describing the Hightstown, NJ pre-job apprentice program.

REPORTING SYSTEM DEVELOPMENT/INITIATION

No direct project funds were spent in the acquisition of computer hardware and/or software. IMI in-kind contributions were used to purchase a PC-compatible computer and printer for the New Jersey and the Los Angeles training centers. These acquisitions were used to support local center operations. To date, little progress has been made on plans to provide an automated data reporting network.

TRANSITIONAL ACCOMPLISHMENTS

Transitional accomplishments are broadly interpreted to encompass any linkage with educational agencies. Educational linkages occurred only in two regions---the Mid-Atlantic and the Midwest. In the Mid-Atlantic region, arrangements were made with three area high schools and one community college. In the Midwest region, arrangements were made with a single community college. Arrangements generally consisted of contracts with area vocational high schools or community colleges to deliver related training instruction. In most cases this consisted of either blueprint reading and/or welding. Arrangements tended to be forged out of expediency. Generally, the training centers did not have the instructional expertise and/or the laboratory/shop equipment necessary to

offer the training.

The Houston training center reported receiving auxiliary funding from the local community college to offer an evening course in blueprint reading. The related instructional program was taught by one of the training center's instructors who was also approved by the local community college. The extent that this practice applied to other centers beyond those visited in the course of the project is unknown.

INSTRUCTIONAL MATERIALS DEVELOPMENT

No project funds were expended for instructional materials development purposes.

TRADE SKILLS DEVELOPED

No objective performance assessment measures were developed during the course of this project. Initial plans were to focus pilot developmental efforts in the tile craft due to the existence of previously developed instructional materials. However, depressed construction activities in the West severely restricted the number and timing of program offerings. Apprentice demand was not sufficiently strong to warrant offering a pre-job tile program given the length of lead time that would have been required to develop objective assessment instrumentation.

RELATED INSTRUCTIONAL KNOWLEDGE GAINED

Lack of quantitative performance measures precluded the assessment of the related instructional knowledge gained. Dampened construction activities throughout the course of the project reduced the number of related training programs offerings. Due to the depressed and sporadic demands, it was considered ill advised to initiate any assessment instrumentation efforts in the absence of a guarantee that related instructional programs would be offered at a time and place as dictated by instrument development requirements. Consequently, no subsequent effort was expended in the development of assessment instrumentation.

CHAPTER 3

IMPACT EVALUATION

This chapter is devoted to a presentation of survey results. Survey results are presented in separate appendices as follows:

- Appendix A: Pre-job Apprentice Survey
- Appendix B: Pre-job Apprentice Early Leaver Survey
- Appendix C: Pre-job Completer/On-the-Job Apprentice Survey
- Appendix D: Journeymen Survey
- Appendix E: Cross-Craft Advanced Journeymen Survey
- Appendix F: Craft Instructor Survey
- Appendix G: Business Agent Survey
- Appendix H: Masonry Contractor Survey

In each appendix, survey results are recorded on a copy of the survey used for the respective population. The total sample size is presented in bold type immediately following the survey heading. For those items requiring the respondee to rate multiple sub-item responses, the number responding to each sub-response is printed in bold type to the left and the distribution across the response categories is printed in to the right of each response box. For survey items that allow the respondent to check all that apply, the number responding to the item is printed in bold type immediately following the response stem, and the number of responses to each of the response categories is again typed in bold to the right of the response box. For those items that permit only a single response, the sum of the frequencies for each response category equals the total number responding to that sub-item. This is not the case for items that permit checking multiple-item response categories. For items asking for numerical biographical data and/or wage information, the number responding is printed in bold as is the average response. A listing of open-ended responses is provided in each appendix. Open-ended responses result from comments and specific requests for suggestions. Open-ended responses are designated as to the specific comments or suggestions to which they pertain. Open-ended responses have been edited so as to meet the prespecified field-length conditions imposed by the database design. Editing was done so as to capture the essence of the responses while eliminating redundancies and nonspecific content. In order to preserve anonymity, specific names have been blocked out.

PRE-JOB APPRENTICE TRAINEE SURVEY

With regard to satisfaction with the program, pre-job apprentices were predominately mostly satisfied with the range of program factors surveyed. Some dissatisfaction was expressed for program length and for physical location. Judging from personal interviews and open-ended responses, dissatisfaction with program length stems from a desire for a longer program. Part of the dissatisfaction with the physical location is caused by long commuting distances in some cases and relatively heavy traffic loads for those training sites located in the inner cities. Seventy percent reported learning more than expected in the training program. When asked how did they learned about the apprenticeship program, the most frequent response was from a friend or a family member, followed in decreasing order by employer and union promotion.

When asked about career plans, nearly four out of every five pre-job trainees reported they plan to continue in the apprenticeship program. Only one indicated planning to quit the program with lack as transportation as the reason. Sixty-five out of sixty-seven responding reported long-term career plans to become a journeyman in the trowel craft. Approximately two out of every five responded that they intended to get more formal education. Assuming consistency of responses, one might conclude that trainees anticipated seeking more formal education while maintaining their journeyman craft status.

Blueprint reading, layouts from drawings, cost estimating and trade math in descending order were judged by the respondents to be the most highly desirable topics for inclusion in a future program. When highly desirable and desirable categories are combined, the top-ranked topics are trade math, blueprint reading, safety and first aid, and layout from drawings, followed closely by the properties of masonry materials and basic construction economics. Topics somewhat lower on the desirability scale include cost estimating, history of trade unions, and masonry science. The least desirable topics are personal finances and personal health.

When asked for suggestions regarding program improvement, some of the commenters indicated satisfaction with the status quo, while others had specific suggestions for improvement. One theme throughout the suggestions was the need for improved physical facilities, i.e., ventilation, more space for special projects and other individualized activities. Other suggestions centered on course content needs and the need to extend the program to emphasize blueprint, cost estimating, masonry properties, and other related instructional areas. Help in finding jobs upon completion and the need for a training stipend or allowance were also offered.

PRE-JOB APPRENTICE EARLY LEAVER SURVEY

Early leavers reported working approximately 600 hours on the average since

leaving the pre-job apprenticeship program. Those early leavers who reported working in the trowel trades since leaving the pre-job apprenticeship program averaged more than twice the number of hours worked for all early leavers, 1285 versus 602. Average current hourly wages of $12.83 per hour was less than the average hourly wage of $15.49 on their last job. The cause for the drop in average wage is not readily apparent. Differences of this order of magnitude are of little practical significance, however, due to the small sample sizes.

When asked about satisfaction with the pre-job apprenticeship program, early leavers reported the highest degree of satisfaction with classroom subjects taught, quality standards employed, tools/equipment used, and the physical location. Greatest relative dissatisfaction was expressed with the instruction/supervision provided and the opportunity for hands-on experience. Reasons for leaving the pre-job program varied widely, with money problems being the most frequently checked reason.

Few early leavers considered any of the pre-job program factors to be highly relevant to their work experience. However, the majority of the respondents considered all pre-job program factors to be relevant to their work experiences. When asked about the importance of related and supplementary skills and knowledges for their work, respondents were unanimous that personal communications and health and well-being were very important. This contrasts with the respondents of pre-job trainees who judged those factors to be least important. In a similar vein, cost estimating was judged to be not at all important, again in contrast to the judgments of the pre-job trainees.

When asked about immediate career plans, early leavers were evenly split regarding their intentions to find a job in the trowel trades or to find a job outside the trowel trades. Reapplication for the pre-job program did not seem to be a popular option. When asked about long-range plans, more early leavers indicated getting more formal education was their top-most career intention, followed by becoming a journeyman in the trowel craft.

Suggestions for program improvement contained a trace of remorse and perhaps recognition that poor motivation may have been a root cause. Other suggestions centered on more flexible working schedules, more on-the-job hands-on trowel experience, and less time on the saw---a task that is frequently overutilized by contractors.

PRE-JOB COMPLETER/ON-THE-JOB APPRENTICE SURVEY

Pre-job completers reported averaging 862 hours of work experience since completing the pre-job program. Those completers reported working in the trowel trades worked on the average of 876 hours as opposed to the overall average of 862. Current hourly wage rate reported was $14.21 an hour, which was up from the $13.45 average

reported on their last job. The average hourly wage rate on their current job was significantly higher for pre-job completers than for pre-job apprentice early leavers--- $14.21 for completers versus $12.68 for early leavers. Dissatisfaction with program factors was highest for physical location, opportunity for hands-on experience, program length, speed demands and classroom subjects taught. Relevancy of pre-job program factors for their work was highest for quality standards employed, trade practices/procedures, tools and equipment used and lowest for classroom subjects taught.

When asked about the importance of related and supplemental skills and knowledges for their work, pre-job completers rated cost estimating, layout from drawings, masonry science and reading technical materials as having the least importance for their work. It is only fair to note, however, that whereas layout from drawings had the second highest number of respondents judging it not to be at all important, this factor also had the highest number of respondents judging it to be very important.

There are some interesting disparities in the perceptions of importance between pre-job trainees and pre-job completers. Whereas trainees regarded cost estimating to be highly desirable, pre-job completers assigned relatively low importance to this factor. Masonry science was regarded as being desirable or highly desirable by 90 percent of the trainees, yet only 73 percent of the pre-job completers regarded masonry science as being very important or somewhat important. Health and well-being and working as a team were regarded as top importance for pre-job completers as opposed to blueprint reading and layouts which were judged to be highly desirable by pre-job trainees.

When asked about learning expectations, the majority of completers indicated that they had learned more than expected. However, the percentage reporting more than expected was less for the pre-job completers (55 percent) than for the pre-job trainees (71 percent). Finishing the apprenticeship program remained the most prevalent immediate career plan, followed by finding a job in the trowel trades. Not enough work was the predominant reason for planning to quit the apprenticeship program. As was the case for the pre-job trainees, becoming a journeyman in the trowel craft was the most frequently reported long-range plan. Getting more formal education dropped somewhat in importance, with going into employment for myself becoming more important as a long-range plan.

As expected, suggestions from pre-job completers were more job specific. A common request was for more job time spent on the wall and less on the saw. There was also a clear call for more related and classroom training in the areas of blueprint, math, levels, rulers, better reference materials, etc. There was also a recurring theme that more instructors were needed in order to provide sufficient personal time for each trainee. There was also a plea for more assistance in helping apprentices find employment.

JOURNEYMAN SURVEY

Thirty-five (35) journeymen responded to the survey. Respondents have an average of nearly 22 years trowel trades experience. During the 1992 calendar year, respondents reported working an average of 1230 hours at an average hourly rate of $20.75. The average hour rate for their current job ($20.75 per hour) was slightly higher than the reported hourly rate for their previous job ($19.76 per hour).

Nearly three-quarters of the journeymen reported having been a trowel craft apprentice. A moderate degree of relevance was ascribed to tasks covered, training mock-ups used and classroom subjects taught. These results were in contrast to on-the-job apprentices who reported these factors of formal apprenticeship training to be highly relevant. Speed demands, trade practices/procedures, tools/equipment used, and materials used were judged somewhat more relevant by the journeymen but did not match the extent of relevancy ascribed by the on-the-job apprentices. With regard to related and supplemental skills/knowledges, journeymen assigned the greatest extent of relevancy to working as a team, followed closely by health and well-being, layout from drawings, personal communications, and blueprint reading. Journeymen and on-the-job apprentices agreed fairly well as to the relative importance of related and supplemental skills/knowledges. One difference was in labor management relations, which was judged to be of greater relative importance by the journeymen than by the on-the-job apprentices. Masonry science and properties of masonry and materials were judged to be relatively more important by the on-the-job apprentices than by the journeymen.

When asked about the desirability of cross-craft training, bricklayer and stone mason were the top candidates, with the least interest shown in cement mason, plasterer, terrazzo worker, and terrazzo finisher. Considerable interest was shown in receiving additional instruction in the areas of foreman training, site safety and master mason.

When asked about their immediate and long-range career plans, nearly three out of four responding journeymen indicated an intent to work locally in the trowel trades. When asked about long-range career plans, over half of the journeymen respondents indicated an intent to get more craft training, with three out of every eight surveyed indicating an intent to become a master mason. Nearly two-thirds of the respondents indicated a willingness to travel to a regional location for eight to twelve weeks training. Nearly 60 percent of the respondents indicated a willingness to work at a regional site requiring them to live away from home for an extended period.

With regard to the improvement of apprentice training, journeymen suggestions emphasized improved planning and supervision of on-the-job apprenticeship, learning through such mechanisms as assigning an apprentice to a qualified journeyman, setting on-the-job goals and evaluating apprenticeship progress toward meeting these goals, and continuing classroom training during working hours with pay. Suggestions for the improvement of upgrading included re-establishment of local Saturday or Sunday training

sessions and the initiation of ongoing seminars. Suggestions for the improvement of cross-craft training ranged from "should be mandated for all" to "do not believe in cross training." Some journeymen felt that forthcoming technology such as Dryvit illustrated a need for upgrading, while others saw the need to push for brick over its competitors.

CROSS-CRAFT ADVANCED JOURNEYMEN SURVEY

Twenty (20) craft persons responded to the survey. Survey respondents indicated an average of eleven-plus years trowel trade experience and reported working an average of slightly over a thousand hours during the 1992 calendar year. Their hourly rate for the current job averaged $19.28 an hour as opposed to an average rate of $20.19 for their previous job. Nearly all of the cross-craft respondents indicated that they had served as a trowel craft apprentice. On the average, cross-craft respondents reported working some 200 hours less during the 1992 calendar year and receiving somewhat less on an average per hourly rate ($19.28 per hour for cross-craft as opposed to $20.75 for journeymen respondents).

Cross-craft respondents rated tasks covered, training mock-up used and classroom subjects taught as having only moderate relevance to their work. Their ratings closely paralleled that of the journeymen respondees. Cross-craft respondents attributed somewhat less relevancy to speed demands, trade practices and procedures, and materials used than did their journeymen counterparts. Blueprint reading, layout from drawings, and working as a team were the related and supplementary skills/knowledges judged by the cross-craft respondees to be most important for their work. As with the journeymen respondees, computer literacy was judged as having the least importance for their work.

Nearly three out of every four cross-craft trainees surveyed reported that they were learning about what they expected. They expressed the greatest degree of satisfaction with the skills taught, the materials employed, and the level of skills developed. Their greatest dissatisfaction was with the instructional materials/mock-ups used, the methods of presenting information, the means of evaluating trainee knowledges/skills, and the training facilities provided.

With regard to intermediate career plans, the majority of cross-craft trainees surveyed indicated an intent to work locally in the trowel trades. Long-range career plans were almost evenly split between becoming a master mason and getting more cross-craft training. Nearly three out of every five cross-craft trainee respondents indicated a willingness to work at a regional site that would require them to live away from home for an extended period of time.

Suggestions as to improvement of apprenticeship training included recommendations to add more related instructions such as welding, blueprint reading,

math and cost assessment. Suggestions dealing with upgrading indicated a need for more hands-on experience and a need to keep current in newly emerging masonry technologies. When asked for suggestions about improvement of cross-craft training, comments were offered pertaining to the need for PCCs to learn brick and stone due to union reorganization, training in residential masonry construction, improved training mock-ups and additional assistance in job placement so as to make the investment in training pay off.

CRAFT INSTRUCTOR SURVEY

Survey responses were obtained from 23 craft instructor respondees. Survey respondees reported an average of 29.65 years of experience in the trowel trades, with over nine years average experience in craft instruction. The preponderance of respondees indicated instructional experience in pre-job and/or related instruction. Instructors reported being mostly satisfied with the surveyed classroom aspects of the A&T program. Greatest dissatisfaction was expressed for the trainee motivation and use of instructional aids. With regard to administrative/support aspects of the A&T program, greatest dissatisfaction was expressed with the public school linkages, instructional materials/mock-ups, computer support, and funding.

Suggestions for program improvement included the need for more realistic settings such as footings, scaffolds, outdoor work, continuous upgrade training at training center sites, better evaluation of apprentices by local unions, and improved textbooks especially in the areas of blueprint reading and materials estimating. Suggestions for administrative improvements dealt with such matters as having a petty cash fund, reducing difficulties of ordering materials, better communication between center administrators and instructors, and qualified personnel for apprenticeship training and journeymen upgrading.

BUSINESS AGENTS SURVEY

Survey returns were obtained from 23 business agents. Responding business agents indicated that their local union was supporting almost 11 apprentices on the average and was considering supporting 9 apprentices for the next six months, nearly 18 for the next year, and 16 on the average over a five-year period. Business agents on the whole were mostly satisfied with the apprenticeship and training program. The greatest dissatisfaction was expressed with the lack of apprentices' communications/literacy skills, the responsiveness of the A&T program to new and emerging technologies, and the related knowledge and theory. Forty-three percent of the business agents surveyed considered pre-job training to be highly critical, and 52 percent considered apprentice pre-job training to be critical for future union prosperity. Nearly two out every three business agents surveyed indicated that training was a highly important organizing tool.

When asked for suggestions regarding improvement of A&T programs, business agents responded with a variety of suggestions such as making apprentices continue schooling until becoming full-fledged mechanics, increased standardization of the A&T programs, annual return trips to training centers by apprentices, necessity to teach history of unionism, and cross training of apprentices. Suggestions pertained to upgrading covered OSHA-improved safety and first-aid classes and the need to offer training in the newer types of materials being used in the masonry trade. Cross-craft training was seen as the way of the future for union-supported training. Welding and surveying were offered as examples of important cross-craft training areas. In response to a request for general suggestions, business agents suggested the need for the unions to become involved in foremen training, the need to teach the importance of organizing, and the absolute necessity to instill appreciation and devotion to the masonry craft and reaffirm traditional values.

MASONRY CONTRACTOR SURVEY

Nineteen (19) masonry contractors completed the survey. On the average, each contractor reported being a signatory contractor for 23 years and generally employing 1 25 apprentices on an annual basis. Contractors projected that their average demand for apprentices to be 1.73 for six months, 4 for a year, and 7.55 over the next five years. When asked about their degree of satisfaction with the apprenticeship and training program, contractors reported relatively more dissatisfaction than satisfaction with related knowledge and theory and the communication/literacy skills of apprentices. Contractors reported being somewhat more satisfied than dissatisfied with craft skills, responsiveness to new technologies, supervision required and overall cost effectiveness. Greatest satisfaction was reported for the availability for apprentices when needed and the length of the apprenticeship training. Of all the survey groups, masonry contractors expressed relatively greater dissatisfaction with programmatic aspects than did any other group.

Suggestions for A&T program improvement stressed the need for productivity and good attitudes, requiring apprentices to work as bricktenders prior to being apprentices so as to better understand what the brick mason does, and the need to train young people before their attitudes and career aspirations become too fixed.

CHAPTER 4

PROCESS EVALUATION

Process evaluation results will be organized according to the process categories as specified in the Evaluation Plan (Section 1). Each process evaluation category will be subsequently described as a major organizational heading.

PROGRAM PLANNING

The program planning process differed according to program type. Pre-job programs were offered in locations where sufficient demand was thought to exist and where facilities were already in existence. Demand was largely determined by local joint apprenticeship committees who petitioned the regional training directors for consideration as a possible program site. Regional training directors made their recommendations to the national IMI office where the final decision was made. The decision to locate pre-job training in Houston was partially dependent upon the existence of acceptable training facilities made available to IMI when the whole of Texas joined IMI as a single contributing local union. Presence of extant training facilities together with sufficient regional demand for apprenticeship training prompted the decision to locate a program in Houston. Because of relatively strong construction activities, New Jersey exhibited sufficient demand to warrant a program site. Sufficient demand coupled with strong local industry support provided the impetus for opening the New Jersey center. Tile training was to be centralized at the Los Angeles center which was to function as a national training site. However, unanticipated drop in the construction activity significantly dampened the demand for apprenticeship training.

As with pre-job program planning, planning for advanced and related instructional programs was driven by local initiative. Local joint apprenticeship committees were encouraged to seek support for training programs addressing their local needs. Petitions from local joint apprenticeship committees were reviewed by the appropriate regional IMI training director and, if the conditions warranted, recommendations made by the regional IMI training director to offer a program to serve local needs. When the need for apprentices did not justify a full program offering, apprentices were selected and sent to regional centers for their training. Final decision as to program offerings was always a national IMI office prerogative.

INSTRUCTIONAL PLANNING

Instructional planning is conditioned by a craft-specific shell of commonly accepted trade practices, procedures and expectations. This craft shell is explicitly manifested in

a series of craft-specific training modules. Each module simulates a major craft task. In bricklaying, a major training module might require the laying of a run to a specified number of courses. Training modules are graduated according to difficulty levels and incorporate many of the basic tasks that a craft person would be expected to perform on the job. Relevancy in terms of the extent to which the training module simulates job-required skills and knowledges has been built into the design of the modules which included multiple evaluations by skilled craft persons to assure compatibility with job requirements. All pre-job programs share a common heritage in that each incorporates IMI developed and approved training modules.

Although the modules as integral performance units are basically standardized, their incorporation into a training curriculum is not. Although many are in various stages of completion, formal programmatic guidelines for apprenticeship training remains to be issued. As a consequence, there appears to be considerable instructor variation in the use and sequencing of IMI modules in ongoing apprenticeship training programs. Lack of programmatic content formulation allows for individual instructor discretion in the sequencing of training modules, the relative amount of training time devoted to each module, the methods used to evaluate trainee performance, objective determination of mastery, and diagnosis of the problems commonly encountered by trainees.

In the absence of extant curriculum planning guidelines, instructors tend to rely upon their personal experiences and subjective craft beliefs. As a result, some instructors believe that the essential requirement is that apprentices be taught to lay a wall that is true and plumb. Others, while not denying its importance, embellish course content with tasks of increasing difficulty, believing that apprentices should be exposed to a wide variety of task requirements they may be expected to encounter on a typical job even though the time on task is insufficient to allow mastery of the more advanced materials or craft practices. These differences in philosophy lead to differential instructional practices and induce variability in the results produced.

For advanced specialty training and general and related instruction, course content is basically demand driven and determined by local initiative. For example, if welding is determined to be a skill in high demand, authority is granted to offer the program either through external contract or in-house if the necessary facilities and instructional skills exist. Welding training is driven by state-mandated certification requirements and students must pass a state-administered test to become certified. They cannot weld on the job without certification.

INSTRUCTIONAL MATERIAL

Instructional materials used in project-supported training are of two basic types: craft-specific training modules and incidental training materials. As described in the preceding section, previously developed IMI training modules provided content continuity

for pre-job programs. All craft-specific pre-job programs incorporated these training modules as major program components.

Incidental training materials ranged from tools, levels, rulers and other work aids to classroom materials such as textbooks, reference books, pamphlets, problem handouts, videocassettes, etc. Many of the classroom aids had been previously developed by IMI.

Availability and accessibility of work aids appeared to be relatively constant across training centers. There is rather general agreement as to the basic tools, equipment and material required in conjunction with the training modules. This uniformity of availability tends not to be the case for classroom materials. Of the training centers visited, considerable variability existed in the size of and accessibility to the inventory of supportive training materials. Some centers appeared to have a well-stocked library of supportive training materials and facilities that support open accessibility for individual student use. Other training centers had minimal classroom space and an almost nonexistent library of training materials easily accessible for trainee usage. As an example of the differences observed, some centers maintained open shelf libraries with direct access from the shop, while others maintained their training materials in locked filing cabinets located in the administrator's office. One center visited had videotaping capabilities, although the instructor admitted that he had neither the time nor the expertise to incorporate this technology into the current program curriculum.

LEARNING ACTIVITIES

Learning in the pre-job programs can be said to be individualized but not necessarily self-paced. Learning is primarily individualized in that the training modules are designed as tasks to be performed by single individuals. However, because of space limitations, training centers have adopted the practice of paired training where two trainees move through the program in tandem. This practice permits two individuals to work at a training station, thereby increasing the service capacity. This practice of pairing works best when both individuals have relatively the same skills level and progress through the program at essentially the same pace. Moving pairs in relative lock step through the sequence of training modules allows training centers to smooth their input and output rates.

Because of the limited number of training stations and the sequencing of training stations imposed by progressive levels of training module difficulty, trainees are not completely free to move through the training sequence at their own pace. This tends to pose problems for the exceptional cases. At the low end, those trainees who require longer exposure time at the beginning training stations cause a backup queue to form waiting for access to the training station. At the upper end of the exceptionality level, students who are capable of moving through the system at a more rapid rate must wait

until space becomes available at the higher skilled training stations. Space limitations frequently preclude opportunities for individualized projects for the more precocious trainees. This has the effect of causing some exceptional trainees to mark time while waiting for the opportunity to advance to the next level.

Managing the individualized learning progress of some twelve to fifteen trainees poses a considerable burden on a single instructor. Progress must be closely monitored, especially for those in the early stages who are experiencing difficulty. Given a fixed level of time and effort, instructors are forced to choose how they will allocate their resources so as to best promote learning. Instructors are required to make the hard choices between whether to devote more time to those experiencing the greatest amount of difficulty at the early stages at the expense of less attention given to those experiencing less learning difficulties. The decision as to whether to attempt to bring all trainees to a minimum level of competency, whether to overlook certain individual shortcomings while attempting to balance the greatest common gain for all, whether to allow passage of all newcomers through the system and, if not, whether to terminate some from the program and how to justify termination appeared to be training dilemmas faced by all instructors. There seems to be little policy guidance as to how these programmatic dilemmas should be resolved. In the absence of learning policies, instructors tend to resolve these questions in accordance with their own professional and personal idiosyncrasies.

INDIVIDUAL DIFFERENCES

Differences in individual abilities, skills and knowledges created training problems, especially for the pre-job programs. Apprenticeship trainees represented a rather diverse lot with wide ranging differences in basic abilities and skills, job experience, construction skills/experiences, personal values, and career goal objectives. Consequently, considerable variation in skills acquisition and motivation were encountered both within and between training centers. This variability caused instructors to have to come to a personal resolution as to issues of quality and quantity and the requisite balance each instructor sought to achieve within their program. Related classroom instruction because of limitations in time and instructional resources tended to emphasize a locked step progress rather than individualized instruction. Individualized instruction is resource intensive and frequently exceeded available programmatic resources.

In the training centers visited, no evidence of formal efforts to assess needs, interests and abilities of individual apprentices was noted. Individual assessments to the extent performed were done subjectively by instructors in the course of observing trainee performance on the program training modules. Subjective instructor assessment of individual differences allows for considerable variability between instructors with consequent effects on the variability of training outcomes. No attempts to deal with individual learner variability such as individual instructional plans or other individually tailored formalized efforts were noted. This should not be construed to imply that

instructors are oblivious to individual differences. On the contrary, many instructors are keenly aware of these differences and seek to modify their instructional strategies so as to accommodate these differences. The point being made is that little or no formalization of the ways and means of individualizing instruction exists. As a result, the system as a whole has little collective memory as to how to deal with individual differences and relies upon individual instructors to reinvent their own unique approaches. Training efficiencies could undoubtedly be achieved if methods that were found to work were to be internalized through more formalized policies, procedures and practices.

CONTROLLING INSTRUCTIONAL SETTINGS

The context of behavioral expectations established in each training program is largely a function of the individual instructor. The instructors are expected to serve as role models and through the dispensation of rewards and punishment to shape behavior in accordance with craft and industry work requirements. The range of behavioral expectations and the techniques used to shape trainee behavior consequently vary from instructor to instructor. Disciplinary problems such as coming to the training center in an intoxicated state may be dealt with by sending the trainee home for the day or, as one instructor reported, sending the trainee out in the yard to perform physical work until they sobered up.

Some instructors attempt to simulate the workplace behavioral requirements by assuming the role of foreman from time to time. Other instructors preferred to separate the training from the real job situation and to depend upon on-the-job apprenticeship experiences to mold apprentices' expectations. Instructor predilection appears to be partly a function of age and craft philosophy. Younger instructors tend to pay more attention to incorporating contextual aspects of the workplace into their training than do the older instructors. Older instructors sometimes have a tendency to assume that laying a wall plumb and true is their major training responsibility and that learning the work culture is more the responsibility of the school of "hard knocks". After all, they learned it that way, why shouldn't the future generation?

PERFORMANCE ASSESSMENT

Conventional craft wisdom holds that all true craft people share a common perception of quality. Since all craft persons are presumed to hold shared mental models as to what constitutes quality, there is no need to seek a more explicit and objective definition. To attempt to objectify quality through explicit criteria is assumed to fail to capture the essence and will be subject to abuse. While held by many of the older instructors, this is not a universally held sentiment. Some instructors will readily admit that they lack explicit standards of quality and that this omission has adverse training effects. Lack of explicit quality standards compound the difficulty of instructional

feedback. In the absence of concrete knowledge as to what they are doing wrong, trainees have a more difficult time developing alternative behavior strategies directed at overcoming quality problems. Instructors have differing models of quality and hence tend to send different signals to the trainees as to the acceptability of their work.

The problem of quality is further compounded by what one contractor termed the "quality line." According to this concept, the industry is always striving to maintain a balance between quantity and quality. If the work tends to overemphasize cost at the expense of quality, quality is compromised with intermediate to long-run cost implications. On the other hand, if too much time and effort is spent in achieving absolute quality, cost and efficiency suffer. The point is that quality is always an ongoing compromise between short-term cost and efficiency considerations and the best job that could be done were cost and resources no object.

The quality line has direct implication for apprenticeship training. If apprentices are trained with the expectation that they should always do their best and should strive for absolute perfection on any job, then they are not being trained to face the realities of the competitive workplace. On the other hand, if they are trained only in the methods that are most cost efficient in the short run, then there is a distinct risk that quality will be compromised and labor made the scapegoat for the comprised quality. Training, as is true on the job, must constantly seek to find a balance on the quality line. Not only do trainees need to know how to produce absolute quality, but also how far quality can and should be compromised in order meet the expediencies of work demands.

Absence of objective performance assessment instrumentation precludes any objective assessment of craft skills and/or related instructional knowledges/skills. Without objective performance assessment capabilities, certification of skills achieved cannot be accomplished. As previously mentioned, instructor feedback in the absence of objective performance assessment must rely upon more informal and global subjective judgements as to learning outcomes achieved. Quantitative assessment of program gains cannot be assessed since there are no objective measures on which to base pre-training/post-training comparative gains.

INTERPERSONAL COMMUNICATION

The nature and intensity of interpersonal communications depend upon the unique interplay of instructors and trainees acted out in a specific training context. Trainees in general respected the craft skills of their instructors and looked up to the instructors as role models. For some instructors observed, interpersonal linkages extended beyond trainee respect for instructors' skills. Some instructors because of a variety of factors functioned as a father figure for some of the trainees, offering them advise on life situations that transcended craft skills boundaries. Some instructors sought to provide an aura of hospitality that extended beyond the shop floor, e.g., one instructor took

several nonresident students fishing on the weekend

SCHOOL TO WORK TRANSITION

No evidence of formal school-to-work transition activities was encountered. Admittedly, secondary and postsecondary educational institutions undoubtedly received notification of the opening of local apprenticesnip programs. In some instances, area vocational schools and postsecondary institutions were contracted with to provide related instructional courses. In at least one instance, postsecondary funding was used to support a training center instructor position to offer a related instructional course in the evening.

These programmatic instances, while indicative of union-educational cooperation, do not constitute transitional activities in the truest sense. No instances were encountered where institutional arrangements for articulation between local educational programs and union-supported apprenticeship training were in place. Apprenticeship admission requirements that an applicant had to be at least 18 years of age tended to preclude any transition linkages between local secondary schools and union training programs. Masonry programs operated by secondary schools tended to be perceived as a competitor producing lower quality training outcomes. In at least one site visited, discussions with school representatives indicated a willingness to entertain dialogue as to the possibility of a transitional program funded with state monies. The local training center response seemed best characterized by apathy and indifference.

OUTREACH COMPONENT

Although there was an organized outreach program at the national level, little evidence of outreach activity was observed at the training centers visited. Although minority groups and women's organizations were included on the mailing lists announcing openings of apprenticeship programs, little if any contact appeared to have been initiated by the local training centers with these groups. While the necessity to reach out beyond the traditional recruitment modes were endorsed, training center administrators adopted a defacto passive policy of nonrefusal rather than targeted recruitment directed at special populations. Apprenticeship recruitment tended to be conducted through conventional channels with minor successes as illustrated by the race and gender enrollment data. Conversations with several directors of women's programs indicated relatively little success in interesting women in opportunities in the nontraditional occupations. Suggestions were offered that if women were to be recruited, the recruitment efforts must be targeted in areas of high concentration such as shopping centers or other very targeted recruitment efforts. Available evidence suggests that little if any targeted recruitment activities were undertaken.

INDUSTRY CONTACTS

Extent and degree of cultivation of industry contacts differed significantly across training centers visited. The New Jersey training center was unique in the extent of industry cooperation observed. The center was named after a local masonry contractor who not only gave of his time and energy, but also invested some $70,000 of his own money to help bring the center into existence. A letter from his son who is currently the president of the firm is offered in Appendix I as testimony of local industry support for apprenticeship training offered through a centralized training facility. The physical arrangement is rather unique in that the building houses both the training center and the offices of the local masonry contractors association. This close physical proximity provides increased employer visibility for the center and serves to promote enhanced communication between the contractors and training center administration and instructor staff.

Other centers visited were not as fortunate in having a local industry benefactor. In these sites, industry contacts were generally through the local union business agent. If the local construction economy was thriving and the business agents supportive of apprenticeship placement, the training center benefited through increased numbers of training slots allocated. Conversely, if construction activity is flat and/or the business agent is not a strong promotor of apprentice utilization, training center demand stagnates. Thus, the key is the business agent's support for apprenticeship utilization, which plays an even more critical role than the level of economic activity. The business agent plays a deciding role in the determination of the apprenticeship to journeymen ratio and in the policing of that ratio on the job site. Contractors are often reluctant to hire apprentices, especially when the wage differential between the two is not great. In these instances, many contractors prefer to go ahead and hire a journeyman with the expectation that they will get more productivity even at the higher rate than if they would have hired an apprentice. The business agent, in order to promote apprenticeship, must be able to convince the contractor that it is to the contractor's financial advantage to hire more apprentices. If the business agent is unwilling or incapable of making a solid argument, opportunities for apprentice placement are diminished and the local demand depressed. Local unions differ as to whether they run a hiring hall or not. In those unions with a hiring hall, the business agent plays a greater role in promoting apprenticeship demand, since the business agent and his field representatives are responsible for all placements.

Although the number of contractors responding to the masonry contract survey was small thereby limiting generalizability, results are nevertheless informative. A majority of the contractors responding indicated they were mostly dissatisfied with related knowledge and theory and with the communication/literacy skills apprentices were receiving. These results indicate areas where improvement may be needed. If the masonry industry can be convinced that training programs are seeking to be responsive to their needs, enhanced industry support could be expected to be forthcoming.

IMI FIELD NETWORK

Program administration depended upon close communication between the training centers and the national IMI office. During the course of the project, the project director made 59 trips to regional training centers and spend 75 days in the field conferring with training center administrators, instructors, local union representatives, and masonry contractors. The assistant project director made 20 trips to IMI regional training centers and spend 22 days in the field.

Supportive services provided by the IMI national office included budgeting, expenditure accounting, and maintenance of enrollments and completion statistics. Preparation of training center budgets was the responsibility of the national office. Each regional training center was asked for a projection of local program demands and initial cost estimates prepared on the basis of these demands. Aggregate program demands were adjusted so as to be consistent with available funding. Program budgets were broken into fixed and variable cost components. Fixed cost components included salaries for administration instruction and staff support, rent, utilities and other overhead functions. For pre-job programs, variable costs on a per trainee served basis included $50 per week travel allowance for 14 weeks, $150 for tools, $50 for basic shop materials, and $50 to $100 for educational materials. Budgets were prepared and submitted to each regional training center.

Training center expenditures were monitored by the national office. Regional training centers generally maintained a local petty cash fund for payment of incidental expenses. Each training center was submitted a monthly budget and expenditure summary showing the budget per line item, the monthly expenditure, the total expenditures to date, and a proportionate comparison showing the actual versus anticipated expenditure rates.

Reports of enrollments, terminations and completions were prepared at the local level and submitted to the national office for entry and aggregation into a national level program enrollment and completion database. Responsibility for maintenance of the enrollment and completion database resided at the national level. No computerized capabilities were developed during the course of the project to allow submission of automated data from the regional training centers to the national office. Computer usage at the regional training centers was restricted to word processing and spreadsheet accounting to facilitate individual center management. None of the centers visited used the computer for instructional management purposes.

PROJECT MANAGEMENT/RECORDKEEPING

In that much of the project management structure and activities have been described in the previous section, discussion will be confined to project recordkeeping

activities. Recordkeeping activities generally follow IMI-approved procedure and format. For the pre-job program, a training achievement record (TAR) is maintained for each apprentice. The content of the TAR differs somewhat according to the craft specialty. The TAR makes provision for general biographical data including the usual address, telephone number, dob, race/ethnicity, nearest relative address, formal education and driver's license. An apprenticeship profile of ratings on the following personality traits is recorded at weekly intervals over the course of the program. Personality traits rated by the instructor are cooperation, application and industry, neatness and orderliness, reliability, initiative, aptitude and workmanship. The TAR further includes a summary of craft-specific training hours by major craft activities and allows provision for free form instructor comments. Craft training is broken up into major tasks and subtasks. For example, a task may be use of tools and equipment with the following subtasks: handtools; operating power tools; operating cement mixer, tile saws and masonry saws; and scaffolding. The tasks and subtasks differ according to the primary craft for which the apprentice is enrolled. Each task and subtask is rated according to whether the apprentice requires instruction or close supervision to perform the task, whether the apprentice generally can perform the task according to quality standards and/or whether the apprentice can work independently in accomplishing tasks so as to meet the full demands of speed and quality standards. No further attempt is made to delineate quality nor speed standards. Ratings are left totally up to the discretion of the instructor. It is also not specifically clear at what time during the pre-job program these ratings are to be made. The presumption is that ratings should be made probably near the end of the program.

Each regional training center submits monthly and annual aggregate reports of apprenticeship and training activities. Each report is broken into five major training activities: pre-job, advanced, cross-craft, supervisory, and specialty description. For each training category the monthly training report calls for the number at the beginning of the month, the number entered during the month, the number terminated during the month, and the number still enrolled at the end of the month. For the annual training report, pre-job training requires a report of the number of programs, the number of trainees, the number completed and the number of job placements. All other categories require only information on the number of programs and the number of trainees. There are, of course, other reporting forms. However, the above described forms capture the major flow of information directly pertaining to program coverage of apprenticeship training. All information reporting is done manually and submitted to the national office for subsequent data entry.

DISSEMINATION/PUBLIC RELATIONS

Dissemination and public relations activities occurred at both the national and regional training center level. Activities at the national level have been previously described in Chapter 2. Therefore, only dissemination/public relations activities occurring

at the training center level will be herein described. Activities conducted at the local training center level included invited speeches/lectures presented by the center administrator, demonstration projects, and masonry libraries maintained at several centers. Lectures and other presentations by the center administrators were exemplified by visits to local high school career days, invited appearances at local community functions, meetings with other training professionals and community service providers. Several centers reported their pre-job apprentices as having been involved in local volunteer building projects. One center reported having pre-job trainees do the masonry work for a community house in conjunction with one of the local hospitals. One of the reported problems with this activity is the possibility of unforeseen liabilities resulting from trainees working on off-site projects. Several centers maintain a library of masonry-related books and periodicals. Libraries were open to access by local architects and other building professionals who might have a related interest. The intent was to promote use of masonry products and indirectly to stimulate the demand for masonry apprentices.

PROJECT GOVERNANCE

IMI is governed by a board of trustees with representation from the International Union of Bricklayers and Allied Craftsmen (BAC) and the International Council of Employers of Bricklayers and Allied Craft (ICE). The board of trustees is further subdivided into subcommittees with oversight responsibilities for the four national and international program areas, one of which is apprenticeship and training. The majority of IMI program activities is implemented and governed at the regional or area level. Regional/area program boards representing labor and management in a defined geographic area meet regularly to determine program needs of their areas and to manage and oversee program implementation. Area boards annually estimate the level and type of training, promotion and other programs that their markets demand and submit budget requests to the board of trustees. The board of trustees considers all program requests along with expected income and establishes an IMI budget.

Each area board serves a similar function for the regional training centers. Review of selected area board meeting minutes revealed that the meetings seemed to be an ideal vehicle for sharing information. Meetings provided IMI's national office staff members with an opportunity to describe and promote ongoing IMI projects and activities. Regional training center directors generally reported on the status of training activities ongoing in their center and alerted the board to any potential problems and/or opportunities in the near future. Meetings seemed to be an ideal opportunity for information presentation and subsequent discussion. The exact role of the board as proactive decision-makers could not be ascertained from the materials at hand.

CHAPTER 5

SUMMATIVE CONCLUSIONS

The purpose of this chapter is to analyze project experience so as to determine possible implications for a regional training approach for meeting the demand of the trowel trades industry. As a basis for this assessment, a regional training model will be put forth as a set of definitional assumptions. Following this brief description of a regional training model, summative conclusions and implications for the regional training model will be presented according to product, impact and process classification.

REGIONAL TRAINING---A TENTATIVE MODEL

Regional training is defined as training provided by a centrally located training center whose jurisdiction for the provision of training exceeds the jurisdictional boundaries of any local craft governing body, in this case local BAC unions. Training regions could be as small as a single state or as large as continental United States or, for that matter, North America, as the BAC is an international union. Determination of regional size would be primarily dependent upon long-term projected demand in the trowel craft trades, geographic distribution of that demand, and economies of scale for trowel craft training centers. The closer the region approximates the geographic jurisdiction of contiguous local unions, the greater the tendency to equate regional with local needs.

Training regions should be served by a single centrally located training center. The centrality of the geographic location is an important consideration if transportation costs from all sectors of the service region are to be minimized. Temporary satellite locations could be established to service pockets of excess demand and be phased out as the demand diminishes.

Regional training centers would specialize in pre-job apprenticeship residential training. Local apprentices would be accepted according to a quota system. Pre-job training would be the primary mission, with other training activities undertaken on an as-available basis. All regional centers offering pre-job training in a particular craft specialty would utilize standardized course and instructional materials and be taught according to uniform instructional practices and procedures.

Pre-job training would be but the first stage of formal apprenticeship training. Once apprentices had completed pre-job training, responsibility for continuance of their training would be transferred from regional training centers to the home JATC. Each union would have an apprenticeship coordinator whose job would be to work with each returning apprentice to develop an ongoing training plan and to monitor apprentices' progress in meeting their planned training objectives. In this manner, continuity between pre-job

training and on-the-job training would be assured. Each returning apprentice would be certified by the regional training center as having met a basic set of core craft competencies expected of all apprentices in that craft area prior to on-the-job experience. An assessment profile of more advanced skills would also be provided for each pre-job completer and could be used by the apprenticeship coordinator as indicative of areas needing further development.

Related instruction beyond that provided in the pre-job program as well as advanced and cross-craft training would be the responsibility of individual locals. Because of the necessity to hold down a job, provisions would be made for offering training at a time and place convenient for the trainee. Due to the variety and uniqueness of local training needs, training programs would be sufficiently flexible to accommodate individual training requirements. The above description constitutes what is meant by a regional training model as it is used in the following context.

SUMMATIVE CONCLUSIONS---PROJECT PRODUCT

The majority of training offered by this project was upgrading/related instruction (see Table 2.5). According to the assumptions of the regional training model as previously delineated, such training would be offered either at satellite locations or in local union facilities. The lessons learned from this project are that the need for advanced training and related instruction does exist and that training can be organized and delivered via a network of regionally decentralized satellite facilities. The challenge for a regional training model is the determination of what training is better offered at satellite centers as opposed to local union jurisdiction. In making the decision, the nature of the training plays an important role. Training for new technologies where the craft expertise is not widely dispersed would probably best be handled on an as-needed basis at satellite training centers. Provision of instructional staff with requisite expertise and the design of course curriculum would be a natural responsibility of the regional training center. On the other hand, courses that incorporate expert knowledge and skills commonly possessed by advanced craft persons would probably best be performed at the local level. Assurances of standardized instructional practices and expertise could be achieved by requiring that all courses must be taught by certified instructors. Instructor certification should be a national IMI responsibility.

Pre-job apprentice training constituted only about a quarter of the total programmatic enrollment output (see Table 2.5). Of the pre-job enrollees, only about one in four were residential trainees (see Table 2.19). Since residential training is a defining characteristic of a regional training center, the majority of the pre-job training conducted was not, strictly speaking, regional training as herein defined.

It can be argued that the Houston training center most closely fits the definition of a regional training center. This center accounted for over 40 percent of the residential

pre-job enrollment (see Table 2.18). Resident trainees came from multiple states within the Southwest region. Although located in physical facilities owned by the local JAC, the center appeared to operate relatively independently of local union influence.

Houston center, while most closely characterizing a truly functional regional training center, also epitomized some of the problems that can be expected. This problem can best be characterized as how to maintain the continuity of training as apprentices shift from pre-job to on-the-job status. Because of the distances involved and the crossing of jurisdictional boundaries, a regional training center will have a great deal of difficulty in monitoring on-the-job apprentice training development. As one training center instructor so aptly expressed it: "Once they step through that door, the door is forever closed"---the implication being that once the training center had graduated a trainee, their responsibility for the continued training for that individual ceased. The conventional wisdom is that the remaining knowledges/skills apprentices need to function as a craft person will be acquired through their on-the-job experiences supplemented by related instruction offered in a classroom setting.

Not all pre-job apprentice completers are able to make a smooth transition to on-the-job training. Transitional problems are best described in the words of the apprentices themselves:

- "I wish the union (or) International Masonry Institute can give assistance after completion of the program in looking for a job. For the pre-apprentice bricklayer it is difficult to be accept for hire. From a construction company (or) firm. My philosophy---is that give the little guy a chance for recognition in becoming a pre-apprentice bricklayer. At this present time I'm unemployed. If I was given an opportunity, I would travel to another state or try to have a job. (And) work in another state. PS---NEED HELP IN FINDING A JOB!!"

- "Not to sing the blues but, I've been an apprentice for two and a half years and I've only worked 11 months. I've also been supposedly indentured to a company that I've worked for and have asked the foreman if I've messed up or not worth rehiring and they have told me they have no problems with me. So I don't know [why] I almost never work. What I'm trying to say is I wish I could get on-the-job training!"

- "It is a shame the way the economy is right now. It makes it very difficult to get the experience an apprentice needs. Unfortunately due to lack of work, not enough apprentices are getting any on-the-job training. . . . I do feel that we all need to work harder to get contractors today to look at the apprentice or improver as not just

cheap labor but tomorrow s future and get us quality hands-on experience."

These transitional problems while made worse by a flat economy are evidence of inadequate support system for postpre-job apprentices. In local unions with a hiring hall, ultimate responsibility for apprenticeship placement falls on the business agent. With regard to business agents' support, postpre-job apprentice completers have commented that:

- "The local BA never tried to place me on any jobs."
- "That our business agents are to be deticated [sic] to the apprenticeship and bricklayers performance and the foreman reaction and performance."

These comments are included not to be critical of business agent performance but to underscore the criticality of the role that the business agent plays in apprenticeship training. Without their fullest commitment and dedication to the placement of apprentices in on-the-job training, pre-job training is an empty promise.

Placement on the job is no guarantee that quality training will be forthcoming. Typical dissatisfactions with on-the-job experience is illustrated by the following apprentices' comments:

- "Need to get the apprentices off the saw more and on the wall because that is what really counts. You can't learn to lay brick on a saw. I'm not saying that the saw isn't important but most apprentices go on a job and don't get any time on the wall at all. It's like once put on the saw you can just about forget about laying any brick."
- "Let us work. Don't just throw us on a saw."
- "The apprentices should have more time on the wall. More time in being taught than in doing sawing or other unimportant duties."
- "Give the trainee more work and time on the wall."

In addition to lack of exposure to major craft tasks on the job, other apprentices' comments indicate a dissatisfaction with mentoring received on the job:

- "When a problem occurs on the job an apprentice should be able to contact someone for advise as to 'tricks of the trade'. As a big

brother program. an apprentice should be able to contact someone to help an apprentice when discouraged with problem. Sometimes on the job may have in employment few journeymen and many apprentices. . . I have seen apprentices become discouraged when they are not laying brick and are cutting brick and grinding or demo work instead."

- "More work for women. I am at 80% right now. but job will only hire me at 50%. For I am woman and women are only good at sweeping, cleaning and saw work. If I do take a job I have to take it at 50-60%. Then when my six months is over I'm laid off. I feel that the supervisor should assign a journeyman to an apprentice, and work with each other in training, not moving apprentices from one person to another or having apprentices work together."

- "More coordinators---apprentice feedback. with each step up in the program let the apprentice know where they're standing. What they should know how to do without journeymen hovering near you. The coordinator should do periodic checks (on site) to see if companies are giving apprentices fair training time for certain procedures."

- "Employers be informed on their obligation to the apprentice and vice versa."

These comments taken as a whole suggest some structural and commitment problems with masonry craft apprenticeship training as currently conducted. Apprenticeship training is a collaborative effort involving the apprentice. the apprenticeship coordinator. business agents. the apprenticeship committee and local contractors. To paraphrase a popular adage. training is only as good as its weakest provider/supporter. Lack of commitment at any level degrades the quality of training, deprives the apprentice of their training membership rights, and ultimately degrades the craft profession. Due to the interdependence. no apprenticeship training effort will ultimately prevail unless attention is simultaneously given to all players in the equation.

Project experience suggests several augmentations to the basic regional training model. These augmentations are defined and elaborated below:

- Establish federal government supported financial assistance grants to pre-job apprentices. These grants would be similar to the so-called "Pell Grants" now in existence. These proposed assistance grants would in effect provide a training stipend the amount of which would depend upon such factors as martial status, family size and other considerations as may be relevant. Resident training requiring apprentices to be away from home and family for a sixteen-week

period would be seriously compromised without the availability of financial assistance. Interviews with pre-job apprentices at the training sites visited indicated that many would be unable to attend pre-job training at a site beyond normal commuting distance from their home without some sort of financial aid. Many apprentices indicated that they were working part-time jobs in order to pay for personal expenses such as automobile, housing, etc. Denied of the ability to meet these ongoing financial commitments, apprentices interviewed indicated they would be unable to continue in the program. A resident-based regional training center without financial support would likely draw from a different client population than that now served. The average age of pre-job apprentices ranges from 25 for PCC programs to almost 38 for pre-job tile programs (Table 2.15). Pre-job trainees in their mid-twenties to mid-thirties are increasingly likely to be married, have a family or most certainly to have ongoing financial obligations. Without some sort of financial support, many of the potential trainees in this age category would be precluded. The age distribution would likely shift to younger trainees with less financial obligations. Younger trainees because of less clear-cut career objectives are likely to be less motivated and therefore more likely to drop out of the program. The current travel allowance of $50 a week is insufficient for anything but incidental expenses. Dependence upon employment compensation as a potential source of support will cover only those who have been laid off and are therefore eligible for such compensation. This requirement would preclude many potential apprentice trainees from receiving financial support. Lack of financial support is the major impediment to the successful operation of a regionalized training model. Without some form of reasonable financial assistance, residential pre-job training at regionally located centers will not be financially practical.

- Articulation with local unions is a critical part of regional approach to pre-job apprentice training. As a mechanism for achieving this articulation, each participating union should be required to have an apprenticeship coordinator. Apprenticeship coordinators should have responsibilities for managing individual apprenticeship training. This training responsibility would extend throughout the apprenticeship. Training plans should be prepared for each apprentice and their progress monitored toward the accomplishment of their training objectives. In order to discharge this responsibility, apprenticeship coordinators should maintain close liaison with regional training centers. Records of trainee progress through the pre-job programs should be submitted at periodic intervals to the responsible

apprenticeship coordinator. Academic and/or disciplinary problems should be noted and all actions taken by the training center should be in close consultation with the local apprenticeship coordinator having jurisdiction for a particular pre-job apprentice. In addition to pre-job responsibilities, local apprenticeship coordinators should be responsible for managing all subsequent classroom related instruction as well as on-the-job training experience. Coordinators should visit all apprentices at their job site locations on a periodic basis to monitor their training progress. Problems encountered on the job, e.g., too much time on the saw, too little time on the wall or any other conditions limiting the range and scope of apprentice experiences should be reported to the business agent. In summary, apprenticeship coordinators should have complete operational responsibility for the management of apprenticeship training.

SUMMATIVE CONCLUSION---PROJECT IMPACT

Many of the concerns having to do with impact evaluation as it applies to on-the-job apprenticeship training has been discussed in the previous section. One topic that remains is to examine the role of advanced and cross-craft training in the context of a regional model. Advanced training and upgrading does not seem particularly well-suited to residential training centers as a delivery mode. Without guarantee of financial support, many journeymen would be unwilling to participate in training that would require them to be away from their home district for a significant period of time. Consequently, advanced and cross-craft training are best considered to be delivered locally through satellite centers. Satellite training would probably be best suited for upgrading in emerging technologies where limited instructional resources would preclude widespread offering at the local level. Advanced and cross-craft training for established and widely used craft technologies would seem best suited for delivery at the local level.

Recommendations for elaboration and expansion of the regional training model are offered as follows:

- Coordination of training at the local union level should be a local responsibility. Depending upon economic conditions and training needs, this coordinative responsibility could be functionally provided by the business agent, the local apprentice and training committee, craft instructors or other designated individuals. The training coordinators would have total management responsibility for upgrading/related instruction needs assessment, selection of those to receive training, and monitoring of training effectiveness. Training should be provided by IMI in accordance with standardized curriculum programs and uniform instructional materials. Upon

completion. journeymen should be certified in the skills constituting the course content.

- Rather than depending upon apprentice learning to take place in an unstructured and unplanned job environment, apprentice coordinators should play a more active role in assuring each on-the-job experience will contribute to apprentice learning objectives. Improved coordination of on-the-job experience with training objectives can be achieved by linking work site opportunities to each apprentice's individual training plan. In so far as possible, the apprenticeship coordinator should attempt to formalize training goals and objectives to be accomplished for each job and to communicate these training expectations to the contractor. A further possibility for increasing the meaningfulness of on-site apprenticeship training is to institute a mentor program. Apprentices would be assigned one or more journeymen to serve as a training mentor. The training mentor would serve as someone whom the apprentice could count upon to seek counsel and advise when needed. The mentor would also function in the capacity of a big brother or sister to the apprentice which would be especially helpful to those apprentices in their early stages.

SUMMATIVE CONCLUSION---PROJECT PROCESS

Process speaks in general to the entire integrated system for the delivery of apprentice and journeymen training in the masonry crafts. Responsibility for the development of a comprehensive and integrated training system rests with IMI. All subsequent process recommendations will therefore by addressed at the national level.

- All regional training centers should be structured and operated according to standardized policies and procedures that are uniformly applied across regions. Pre-job apprenticeship programs should be delivered in accordance with standardized curricula and instructional practices. Standardized curriculum design should provide for quantifiable performance assessment with accompanying performance benchmarking. Skills in each craft area should be identified based on task analysis and the performances indicative of varying skills levels identified. By so doing, pre-job apprentices can be certified by the regional centers in terms of the skills and skill levels attained by the apprentice. Instructors should be evaluated and rewarded according to predefined acceptable instructional practices. Sufficient training support resources should be provided so as to automate instructional management and relieve instructors

of much of the tedious administrative burden freeing them to devote their time to the teaching of craft skills.

- The training system should be extended to include apprentice coordinators, local training coordinators and business agents. The scope of IMI training activities should be expanded to include each of these groups. Systematized procedures for apprenticeship training management should be developed and apprenticeship coordinators trained in their usage. Materials promoting the benefits of employing apprentices should be developed and business agents acquainted with how such information might be used to work with masonry contractors. Local unions should be encouraged to appoint training coordinators and every effort made to encourage these coordinators to attend IMI instructor training.

- Training courses and materials should be developed for advanced journeymen training, particularly in those areas dealing with emerging technologies. These programs, short courses, and/or instructional materials should be consistent with instructional practices as taught in the IMI instructor training program. Procedures to assist local training coordinators should be developed and disseminated. Local training coordinators should be provided instruction in the utilization of these supportive systems and materials, and incentives developed for their use.

EPILOGUE

This grant has unequivocally demonstrated the feasibility of a regional training model for the masonry trades. In spite of depressed activity in the construction industries, nearly 1500 pre-job/cross-craft/advanced enrollees were served. The general consensus of pre-job enrollees was overwhelmingly positive. Their personal testimonies expressed an appreciation for the grant-provided opportunity to learn craft skills with direct job relevance. Provision of related and/or advanced training to over 800 enrollees distributed over multiple training sites demonstrated both the need for and the capability to provide regional training.

Not all was perfection, however. Enrollment statistics reveal that equality of minority and gender representations remain a yet-to-be achieved goal. Contractors should be encouraged to make more effective use of apprentice resources. Regional disparities in program content and cost suggest that curriculum and facility standardization be a continuing IMI priority. The apprenticeship and training system needs to be expanded to include business agents, coordinators and training officers, their roles further clarified and national office activities initiated to ensure their ongoing cooperation, support

and active participation. Progress in the development of standardized performance assessments for all masonry crafts should continue at an accelerated pace. To the extent that progress in these needed areas is forthcoming, this demonstration grant can be said to have made a positive contribution toward the development of an improved regional training system for the masonry trades.

APPENDIX A

Pre-job Apprentice Survey

International Masonry Institute
Regional Training Demonstration Program
Pre-job Apprentice Trainees Survey

N = 68

Name: Social Security No.:

Site:

Program name:

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1. Please ✔ whether you are **mostly satisfied** or **mostly dissatisfied** with the program for each of the following factors:

N		Mostly satisfied	Mostly dissatisfied
68	Tasks covered	❒ 68	❒ 0
68	Training mock-ups used	❒ 66	❒ 2
68	Classroom subjects taught	❒ 67	❒ 1
66	Quality standards employed	❒ 64	❒ 2
66	Speed demands	❒ 63	❒ 3
68	Instruction/supervision provided	❒ 66	❒ 2
68	Tools/equipment used	❒ 67	❒ 1
68	Program length	❒ 61	❒ 7
68	Opportunity for hands-on experience	❒ 68	❒ 0

N			
68	Facilities (building, room, etc.)	❒ 64	❒ 4
68	Physical location	❒ 58	❒ 10

2. In the pre-job program, ✔ whether you are learning:

N = 68

more than expected	❒ 48
about what you expected	❒ 16
less than expected	❒ 4

3. How did you learn about the apprenticeship program? ✔ all that apply.

N = 68

Friend	❒ 22
Family member	❒ 24
School counselor	❒ 3
Newspaper	❒ 8
TV	❒ 0
Teacher	❒ 2
Employment counselor	❒ 2
Employer	❒ 14
Union promotion	❒ 14
Religious leader	❒ 0
Other (please specify):	
_____	❒ 6

4. What are your immediate career plans? ✔ only one.

N = 68

Continue in the apprenticeship program	❒ 53 ☞	**Question 6**
Find a job in the trowel trades	❒ 15 ☞	**Question 6**
Find a job outside the trowel trades	❒ 0 ☞	**Question 6**
Quit the program	❒ 0 ☞	**Question 5**

5. Why are you planning to quit the program? ✔ all that apply.

N = 1

Money problems	❒ 0
Family difficulties	❒ 0
Lack of transportation	❒ 1
Poor instruction	❒ 0
Not interested in trade	❒ 0
Can't do the work	❒ 0
Not enough time	❒ 0
Class instructions hard to follow	❒ 0
Better job offer	❒ 0
Don't get along with instructor	❒ 0
Other (please specify):	
_____	❒ 0

6. What are your long-range career plans? ✔ all that apply.

N = 67

Become a journeyman in the trowel craft	❒ 65
Become a journeyman in another craft/trade	❒ 4
Go into employment for myself	❒ 19
Get more formal education	❒ 26
Enlist in the military	❒ 0
Other (please specify): _____	❒ 2

7. Please ✔ the **desirability** of including the following topics in a future program:

N		Highly desirable	Desirable	Not desirable	No opinion
63	Trade math	❒ 44	❒ 18	❒ 0	❒ 1
63	Blueprint reading	❒ 54	❒ 8	❒ 0	❒ 1
63	Personal finances	❒ 32	❒ 22	❒ 6	❒ 3
63	Safety and first aid	❒ 39	❒ 24	❒ 0	❒ 0
62	Personal health	❒ 39	❒ 16	❒ 6	❒ 1
63	Cost estimating	❒ 46	❒ 12	❒ 4	❒ 1
62	Layout (from drawings)	❒ 57	❒ 5	❒ 0	❒ 0
64	History of trade unions	❒ 21	❒ 32	❒ 4	❒ 7

N					
61	Masonry science	❒ 32	❒ 23	❒ 4	❒ 2
62	Properties of masonry materials	❒ 35	❒ 26	❒ 1	❒ 0
62	Basic construction economics	❒ 35	❒ 24	❒ 1	❒ 2
4	Other (please specify):				
	_____	❒ 4	❒ 0	❒ 0	❒ 0

8. Do you have any suggestions for program improvement?

Comments from: survey1

-Comment #: 1

Yellow Pages

Classmate: [redacted]

Walkin

School lecture

Business Agent

Called Union Hall for phone #

-Comment #: 2

-Comment #: 3

Be a strong union member

Self-employment when work slow

See what life careers I want.

-Comment #: 4

Business management

History in Bricklaying

Molding or Casting

Instructor: [redacted]

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Suggestions from: survey1

-Suggestion #: 1

Ideal for learning a trade; chance to see how work is done; gives hands-on.

Do Not Change: might consider making program longer to gain more experience

Put sleeping quarters on site.

More ventilation---too much dust!

Get more firm---run class or shop like a foreman would run a job.

More room.

A few on-site inspections.

More schools, more pay, better vents theaters.

Bigger building for more room.

A larger school; a school in South Jersey (Atlantic-Capemay County).

At this point in time, I'm completely satisfied with the program.

Keep this program as it is. It's a very good program.

I like everything the way it is. I just want to keep learning.

No, the program needs no improvement.

To keep fellow apprentices working at all times.

Very good program!

Trainees need 6 mos. as hod carrier or laborer. 3 mos. too short for progr.

Include form casting in PCC.In depth on concrete patching,matching of stone

Help find jobs for us!

Emphasize trade math, blueprint reading and, especially, cost estimating.

Actually build a block interior, brick exterior room, using lime mortar.

Show talents by adding on to the building; special projects to raise morale

Honored to have attended IMI and feel it worth time & effort to have a part

I think they should teach cement finishing in the pre-job course.

If possible, limit acceptance to those serious about being union craftsmen.

The need for more than one instructor at the school.

Extend program; emphasize blueprt,cost estimat.,masonry propert.& reinforc

House work,fireplace,steps,patios,walls;assist finding job after graduation

Keep up the good work!

Very satisfied with the program!

An allotment that is compatible with the cost of living.

APPENDIX B

Pre-to-Intervention Early Leaver Survey

International Masonry Institute

Regional Training Demonstration Program

Pre-Job Apprentice Early Leaver Survey

N = 8

Name _____ Social Security No _____

1. How many hours have you worked since leaving the pre-job apprentice program?

   Average 6015 hours If you have NOT worked since leaving, go to Question 5

2. How many hours have you worked in the union trades since leaving the pre-job apprentice program?

   Average 1864 hours If NOT currently working, go to Question 4

3. What is your current hourly wage rate?

   Average $8.85 per hour Go to Question 5

4. What was your hourly wage rate on your last job?

   Average $8.49 $/per hour

5. Please ✔ whether you were **mostly satisfied** or **mostly dissatisfied** with the pre-job apprentice program for each of the following factors:

	Mostly satisfied	Mostly dissatisfied
8 Tasks covered	☐ 6	☐ 2
8 Training mock-ups used	☐ 6	☐ 2

N			
8	Classroom subjects taught	☐ 7	☐ 1
8	Quality standards employed	☐ 7	☐ 1
8	Speed demands	☐ 8	☐ 2
8	Instruction/supervision provided	☐ 9	☐ 3
8	Tools/equipment used	☐ 1	☐ 1
8	Program length	☐ 4	☐ 2
8	Opportunity for hands-on experience	☐ 5	☐ 3
8	Facilities (building, room, etc.)	☐ 6	☐ 2
8	Physical location	☐ 7	☐ 1

9 Why did you leave the pre-job program? ✓ all that apply.

N		
9	Money problems	☐ 1
9	Family difficulties	☐ 0
9	Lack of transportation	☐ 1
9	Poor instruction	☐ 1
9	Not interested in trade	☐ 0
9	Couldn't do the work	☐ 1
9	Not enough time	☐ 1
9	Class instructions hard to follow	☐ 1
9	Better job offer	☐ 1

N = 6

Didn't get along with instructor ❒ 0

Other (please specify):

_____ ❒ 3

*If you have **NOT** worked since leaving the pre-job program, ☞ Question 9*

7. As judged by your recent work experiences, ✔ how **relevant** each of the following pre-job program factors is for your work:

N				
4	Tasks covered	❒ 0	❒ 3	❒ 1
4	Training mock-ups used	❒ 0	❒ 3	❒ 1
4	Classroom subjects taught	❒ 0	❒ 2	❒ 1
4	Quality standards employed	❒ 0	❒ 2	❒ 1
4	Speed demands	❒ 0	❒ 3	❒ 1
4	Trade practices/procedures	❒ 0	❒ 3	❒ 1
4	Tools/equipment used	❒ 0	❒ 3	❒ 1
4	Materials used	❒ 0	❒ 3	❒ 1
0	Other (please specify):			
	_____	❒ 0	❒ 0	❒ 0

8. Based on your accumulated work experience, ✔ how **important** each of the following related and supplemental skills/knowledges is for your work.

%		Very important	Somewhat important	Not very important	Not at all important
4	Trade math	❒ 2	❒ 1	❒ 0	❒ 1
4	Blueprint reading	❒ 3	❒ 1	❒ 0	❒ 0
3	Cost estimating	❒ 0	❒ 1	❒ 0	❒ 2
4	Layout (from drawings)	❒ 3	❒ 0	❒ 0	❒ 1
4	Masonry science	❒ 1	❒ 2	❒ 0	❒ 1
4	Properties of masonry materials	❒ 2	❒ 1	❒ 1	❒ 0
4	Labor management relations	❒ 2	❒ 2	❒ 0	❒ 0
4	Personal communications	❒ 4	❒ 0	❒ 0	❒ 0
3	Reading technical materials	❒ 2	❒ 0	❒ 0	❒ 1
4	Health and well-being	❒ 4	❒ 0	❒ 0	❒ 0
4	Working as a team	❒ 3	❒ 0	❒ 0	❒ 1
0	Other (please specify)				
	_____	❒ 0	❒ 0	❒ 0	❒ 0

9. What are your immediate career plans? ✔ only one.
N = 7

Re-apply for the pre-job program	❒ 1
Find a job in the trowel trades	❒ 3
Find a job outside the trowel trades	❒ 3

10. What are your long-range plans? ✔ all that apply.
N = 7

Become a journeyman in trowel craft	❒ 4
Become a journeyman in another craft/trade	❒ 1
Go into employment for myself	❒ 2
Get more formal education	❒ 5
Enlist in the military	❒ 0
Other (please specify):	
_____	❒ 1

11. Do you have any suggestions to improve the:

(a) classroom training?

(b) on-the-job training?

Comments from: survey2

-Comment #: 1

Illness

Job offer,but wished to finish

Dismissed because of absence

-Comment #: 2

-Comment #: 3

-Comment #: 4

Do inspecting in masonry trade

Suggestions from survey2

-Suggestion #: 1

Would have liked trle setting classes as promised me & which I never took.

Tell students to try harder; to put in heart & willingness to learn craft.

Offer after working hours or flexible schedule because of downtime in work.

Better mgt.& supervision; more locations & instructr.to teach with patience

More on the job training while still in pre-apprenticeship program.

I feel I got the best training & attention; instructors willing to help.

-Suggestion #: 2

More hands-on trowel experience, not on saw all the time---poor preparation

Goal is to work in the trade & become a union member;wished I had finished.

APPENDIX C

Pre-job Completer/On-the-Job Apprentice Survey

International Masonry Institute
Regional Training Demonstration Program
Pre-job Completer/On-the-job Apprentice Survey

N = 48

Name: Social Security No.:

---

1. How many hours have you worked since completion of the pre-job apprentice program?

N
47 (Average) 861.53 hours If you have **NOT** worked since completion

☞ **Question 5**

2. How many hours have you worked in the trowel trades as an on-the-job apprentice since completion of the pre-job apprentice program?

41 (Average) 875.78 hours If **NOT** currently working, ☞ **Question 4**

3. What is your current hourly wage rate?

36 (Average) 14.21 $/per hour ☞ **Question 5**

4. What was your hourly wage rate on your last job?

39 (Average) 13.45 $/per hour

5. Please ✔ whether you were **mostly satisfied** or **mostly dissatisfied** with the pre-job apprentice program for each of the following factors:

		Mostly satisfied	Mostly dissatisfied
48	Tasks covered	❒ 44	❒ 4
48	Training mock-ups used	❒ 45	❒ 3

N			
48	Classroom subjects taught	❒ 43	❒ 5
47	Quality standards employed	❒ 43	❒ 4
48	Speed demands	❒ 43	❒ 5
47	Instruction/supervision provided	❒ 43	❒ 4
48	Tools/equipment used	❒ 46	❒ 2
48	Program length	❒ 43	❒ 5
47	Opportunity for hands-on experience	❒ 41	❒ 6
48	Facilities (building, room, etc.)	❒ 46	❒ 2
47	Physical location	❒ 40	❒ 7

*If you have **NOT** worked since completing the pre-job program,* ☞ ***Question 9***

6. As judged by your on-the-job experiences, ✔ how **relevant** each of the following pre-job program factors is for your work:

41	Tasks covered	❒ 24	❒ 15	❒ 2
41	Training mock-ups used	❒ 24	❒ 14	❒ 3
41	Classroom subjects taught	❒ 20	❒ 17	❒ 4

N		
40	Quality standards employed	❒ 25 ❒ 14 ❒ 1
41	Speed demands	❒ 21 ❒ 17 ❒ 3
41	Trade practices/procedures	❒ 28 ❒ 12 ❒ 1
41	Tools/equipment used	❒ 28 ❒ 12 ❒ 1
41	Materials used	❒ 24 ❒ 15 ❒ 2
3	Other (please specify): _____	❒ 2 ❒ 1 ❒ 0

7. Based on your accumulated on-the-job experience, ✔ how **important** each of the following related and supplemental skills/knowledges is for your work:

N		Very important	Somewhat important	Not very important	Not at all important
41	Trade math	❒ 28	❒ 7	❒ 5	❒ 1
41	Blueprint reading	❒ 26	❒ 2	❒ 8	❒ 5
40	Cost estimating	❒ 15	❒ 9	❒ 9	❒ 7
41	Layout (from drawings)	❒ 28	❒ 5	❒ 2	❒ 6
40	Masonry science	❒ 17	❒ 12	❒ 5	❒ 6
41	Properties of masonry materials	❒ 22	❒ 11	❒ 4	❒ 4
41	Labor management relations	❒ 18	❒ 10	❒ 10	❒ 3
41	Personal communications	❒ 25	❒ 12	❒ 2	❒ 2

N					
41	Reading technical materials	❒ 22	❒ 10	❒ 3	❒ 6
41	Health and well-being	❒ 30	❒ 8	❒ 2	❒ 1
41	Working as a team	❒ 35	❒ 4	❒ 2	❒ 0
3	Other (please specify): _____	❒ 3	❒ 0	❒ 0	❒ 0

8. In your on-the-job training, ✔ whether you are learning:

N = 42

more than expected	❒ 23
about what you expected	❒ 13
less than expected	❒ 6

9. What are your immediate career plans? ✔ only one.

N = 47

Finish the apprenticeship program	❒31 ☞	**Question 11**
Find a job in the trowel trades	❒11 ☞	**Question 11**
Find a job outside the trowel trades	❒ 5 ☞	**Question 11**
Leave the apprenticeship program	❒ 0 ☞	**Question 10**

10. Why are you planning to quit the apprenticeship program? ✔ all that apply.

N = 4

Wages too low	❒ 0
Not enough work	❒ 2

N = 4

Can't do the work ☐ 6

Better job offer ☐ 7

Not interested in trade ☐ 8

Don't get along with supervisor ☐ 9

Other (please specify):

_____ ☐ 4

11. What are your long-range plans? ✔ all that apply.

N = 48

Become a journeyman in trowel craft ☐ 39

Become a journeyman in another craft/trade ☐ 0

Go into employment for myself ☐ 10

Get more formal education ☐ 10

Enlist in the military ☐ 1

Other (please specify):

_____ ☐ 10

(b) on-the-job training?

[redacted]

[redacted]

-Comment #: 2

2nd-7th import,but I never use

Use selfdrive to improve speed

Accept nothing less than best

-Comment #: 3

[redacted]

[redacted]

[redacted]

[redacted]

-Comment #: 4

Happy working in ceramic tile.

Get more than 500 hrs.in a yr.

Foreman/Super/Delegate

Change occup.;masonr.cutthroat

Get knowledge&advance in trade

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become foreman of job super

Women need to try to help/cooperate

Wages low/save this industry

Tolerance--unrelated

Get environment as architect

Suggestions for Survey

Suggestions #1

Place apprentices in job field to get experience[redacted]BA never tried

Need teachers not bricklayers subing as teachers;[redacted] needs replacing.

No suggestions---the training is fine.

Show slides & videos on brick/stone architecture & other brick & stone work

More time on blueprints.

Stress attitude & communications between bricklayer,labor,foreman,steward.

The training is very,thorough.

Film or slides showing all aspects of trowel trade other than bricklaying.

More trade material, handouts, booklets, etc. to act as future references.

Sharpened skills already acquired but not deep enough into other aspects.

Emphasize importance of plumb & level---makes everything in work turn out.

More on-the-job training.

[redacted] patient but needs more help in shop to give help to all apprentice

Very satisfied with everything including instr.[redacted]

More supervision of hands-on; more classroom training; had to learn on own.

Teach more level work and ruler experience.

Add another instructor to help with class---one instructor not enough.

Put classroom in a place with protection against wind/rain---not in a tent.

Math (figuring dimens.&costs) & blueprint reading very important & valuable

Don't bring in new students after course is several wks old--lose momentum.

[illegible]

[illegible]

[illegible]ep apprentices working long enough to learn trade, pick up & keep speed.

[illegible]mployers be informed on their Obligation to the Apprentice & vise versa.

[illegible]et us work. Don't just throw us on a saw.

[illegible]mind students periodically of proper technique, as variations do occur.

[illegible]s like working with people/employer who comes back from lunch intoxicated.

[illegible]t is very educational.

[illegible]ve a Big Brother system to help apprentices learn and ask advise.

[illegible]tick to basics of bricklaying; leave arches, conc steps, fireplaces for later

[illegible]ontractors need to look at apprentice as tomorrow's future & give hands-on

[illegible] [illegible]

[illegible]

[illegible]

[

APPENDIX D

Journeymen Survey

International Masonry Institute
Regional Training Demonstration Program
Journeyman Survey

N = 35

Name: Social Security No.:

BAC No.: Primary Craft:

N
35 Number of years trowel trades experience: 21.86 years (Average)

N

1. How many hours did you work in the trowel trades during the 1992 calendar year?

30 (Average) 2300.0 hours If NOT currently working, go to Question 3

2. What is the hourly rate for your current job?

28 (Average) 16.75 $/hour go to Question 4

3. What was the hourly rate for your last job?

26 (Average) 18.78 $/hour

4. Were you ever a trowel craft apprentice?

N = 35

Yes ☐ 26% go to Question 5

No ☐ 9% go to Question 6

5. As judged by your on-the-job trowel trade experience, ✔ how **relevant** each of the following factors of formal apprenticeship training is for your work:

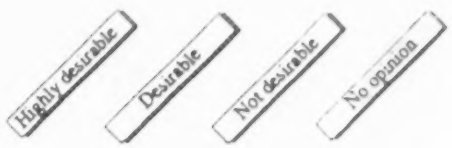
N		Highly relevant	Relevant	Not relevant
26	Tasks covered	❒ 9	❒ 14	❒ 3
26	Training mock-ups used	❒ 7	❒ 13	❒ 6
24	Classroom subjects taught	❒ 8	❒ 11	❒ 5
27	Quality standards employed	❒ 15	❒ 10	❒ 2
27	Speed demands	❒ 15	❒ 9	❒ 3
26	Trade practices procedures	❒ 15	❒ 10	❒ 1
27	Tools/equipment used	❒ 17	❒ 10	❒ 0
27	Materials used	❒ 16	❒ 11	❒ 0
3	Other (please specify) _____	❒ 2	❒ 0	❒ 0

6. Based on your accumulated work experience, ✔ how **important** each of the following related and supplemental skills/knowledges is for your work:

N		Very important	Somewhat important	Not very important	Not at all important
27	Trade math	❒ 18	❒ 9	❒ 0	❒ 0

N					
33	Blueprint reading	❒ 21	❒ 11	❒ 1	❒ 0
32	Cost estimating	❒ 11	❒ 9	❒ 8	❒ 4
33	Layout (from drawings)	❒ 23	❒ 7	❒ 2	❒ 1
33	Masonry science	❒ 10	❒ 18	❒ 3	❒ 2
33	Properties of masonry materials	❒ 9	❒ 18	❒ 5	❒ 1
33	Labor management relations	❒ 18	❒ 7	❒ 7	❒ 1
33	Personal communications	❒ 21	❒ 9	❒ 2	❒ 1
33	Reading technical materials	❒ 16	❒ 11	❒ 5	❒ 1
33	Health and well-being	❒ 26	❒ 5	❒ 2	❒ 0
33	Working as a team	❒ 29	❒ 3	❒ 0	❒ 1
31	Computer literacy	❒ 1	❒ 11	❒ 10	❒ 9
4	Other (please specify):				
	_____	❒ 4	❒ 0	❒ 0	❒ 0

7. Please ✔ how **desirable** you consider receiving more training in the following areas. ✔ all that apply.



34	Upgrading within primary craft	❒ 16	❒ 16	❒ 2	❒ 0

Cross-craft training: (✔ all that apply)

N					
34	Bricklayer	❒ 22	❒ 10	❒ 2	❒ 0
34	Stone Mason	❒ 21	❒ 11	❒ 2	❒ 0
32	Cement Mason	❒ 7	❒ 13	❒ 10	❒ 2
31	Marble Mason	❒ 17	❒ 10	❒ 3	❒ 1
28	Marble Finisher	❒ 12	❒ 9	❒ 5	❒ 2
29	Plasterer	❒ 3	❒ 12	❒ 11	❒ 3
27	Terrazzo Worker	❒ 7	❒ 6	❒ 12	❒ 2
28	Terrazzo Finisher	❒ 6	❒ 8	❒ 11	❒ 3
31	Tile Layer	❒ 14	❒ 13	❒ 3	❒ 1
30	Tile Finisher	❒ 14	❒ 12	❒ 3	❒ 1
33	Pointer, Cleaner, Caulker	❒ 10	❒ 14	❒ 6	❒ 3
34	Foreman	❒ 20	❒ 9	❒ 3	❒ 2
30	Masonry contractor	❒ 11	❒ 10	❒ 9	❒ 0
31	Estimator	❒ 15	❒ 9	❒ 5	❒ 2
30	Supervisor	❒ 17	❒ 4	❒ 6	❒ 3
33	Site safety	❒ 21	❒ 10	❒ 2	❒ 0
32	Master mason	❒ 19	❒ 10	❒ 3	❒ 0
31	Craft instructor	❒ 14	❒ 7	❒ 8	❒ 2

8. What are your immediate career plans? ✔ only one.

N = 35

Work locally in the trowel trades	❒ 26
Seek employment in another trade	❒ 0
Work in the trowel trades in another jurisdiction	❒ 6
Quit working in the trades	❒ 1
Other (please specify): _____	❒ 2

9. What are your long-range career plans? ✔ all that apply.

N = 32

Get more craft training	❒ 17
Go into business for myself	❒ 5
Go back to school/college	❒ 5
Become a craft instructor	❒ 6
Become a master mason	❒ 12
Other (please specify): _____	❒ 10

10. Would you be willing to travel to a regional location for 8-12 weeks training?

N = 33

Yes	❒ 20
No	❒ 13

11. Would you be willing to work at a regional site that would require you to live away from home for an extended period?

N = 33

Yes	❒ 19
No	❒ 14

12. Do you have any suggestions for improvement of:

(a) Apprentice training?

(b) Upgrading?

(c) Cross-craft training?

(d) Other (please specify)?

Comments from: survey4

-Comment #: 1

Not trained very good

Perseverance

On job

Doesn't remember 45 yrs. ago

Feedback from other apprentice

-Comment #: 2

To use & keep tools;OSHAsafety

Willingness

OSHA-EPA

The desire to be a mason!

-Comment #: 3

[redacted] brick too low paid.

To retire in 2 years.

Instructor of Masonry

I am now retired.

Retire

Suck up to Business Agent

-Comment #: 4

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Retirement

If pay increase is high enough

Become tile mechanic

To retire in 2 years.

Make a living.

Retire.

I do well.

(Retired)

Mgt.estimatejobs.safety inspec

Continue as I am doing.

Work in other countries.

Retire

Suggestions from: survey4

-Suggestion #: 1

Apprentices need more on-the-job experience.

Teach more in the classroom!!! Teach more on O.J.T.!!!

Get serious with classroom training.

Assign appren.to qualified bricklayer & have him do all tasks jouryman does

Apprent.should achieve certain on-the-job goals every 6 mos.to learn craft.

Training should be one day a week during working hours with pay.

Math---layouts, welding

More pre-training;lose too many not knowing what goes into being a trademan

Make it a four-year program.

Stop contractors from using them for labor work & grouting concrete walls.

-Suggestion #: 2

N/A

N/A

Use more Americans.

Higher wages and health insurance

Reestablish local Sat. or Sun. sessions on materials,new methods,safety,etc

For those seeking information,upgrading is available,but many not motivated

Have seminars.

-Suggestion #: 3

N/A

Graft tile & bricklaying in apprentice training.

Do not believe in cross training;people can't handle,become mediocre in all

Study & learn to use Dry-Vit, as jobs are combining masonry & Dry-Vit.

High standards and training of work must be assured and kept up.

I was training as a mason and cement mason & picked up stone mason over yrs

Should be mandated for all, to what extent would be a difficiult decision.

Some techniques apply from other trades.

-Suggestion #: 4

N/A

Push for brick over Drivit & other plaster exteriors.

I am too old.

A.C.I. Certification is very good---masonry should have something like this

Need knowledge of why things are scheduled to see flow & project as a whole

Put different qualification levels on tradesmen's books; not all are equal.

APPENDIX E

Cross-Craft Advanced Journeymen Survey

International Masonry Institute
Regional Training Demonstration Program
Cross-craft Advanced Journeyman Survey

N = 20

Name: Social Security No :

BAC No.: Primary Craft:

Number of years trowel trade experience: 11.15 (Average) years N = 20

---

1. How many hours did you work in the trowel trade during the 1992 calendar year?

   N

   17 (Average) 1,001.53 hours If **NOT** currently working, ☞ **Question 3**

2. What is the hourly rate for your current job?

   17 (Average) 19.28 $/hour ☞ **Question 4**

3. What was the hourly rate for your last job?

   13 (Average) 20.19 $/hour

4. Were you ever a trowel craft apprentice?

   N = 20

   Yes 19 ☞ **Question 5**

   No 1 ☞ **Question 6**

5. As judged by your on-the-job trowel trade experience, ✔ how **relevant** each of the following formal apprenticeship training factors is to your work:

N		Highly relevant	Relevant	Not relevant
17	Tasks covered	❒5	❒9	❒3
16	Training mock-ups used	❒6	❒8	❒2
17	Classroom subjects taught	❒6	❒9	❒2
17	Quality standards employed	❒8	❒7	❒2
17	Speed demands	❒5	❒7	❒5
17	Trade practices/procedures	❒8	❒8	❒1
17	Tools/equipment used	❒10	❒5	❒2
17	Materials used	❒7	❒6	❒4
3	Other (please specify): _____	❒1	❒1	❒1

6. Based on your accumulated work experience, ✔ how **important** each of the following related and supplemental skills/knowledges is for your work:

		Very important	Somewhat important	Not very important	Not at all important
17	Trade math	❒10	❒ 4	❒ 3	❒ 0

N								
18	Blueprint reading	❒	12	❒ 4	❒ 1	❒	1
18	Cost estimating	❒	5	❒ 7	❒ 3	❒	3
18	Layout (from drawings)	❒	12	❒ 5	❒ 0	❒	1
17	Masonry science	❒	3	❒ 11	❒ 1	❒	2
17	Properties of masonry materials	❒	8	❒ 6	❒ 1	❒	2
17	Labor management relations	❒	4	❒ 11	❒ 1	❒	1
17	Personal communications	❒	9	❒ 6	❒ 1	❒	1
17	Reading technical materials	❒	8	❒ 7	❒ 2	❒	0
17	Health and well-being	❒	8	❒ 5	❒ 3	❒	1
18	Working as a team	❒	12	❒ 4	❒ 1	❒	1
17	Computer literacy	❒	0	❒ 3	❒ 6	❒	8
3	Other (please specify):						
	_____	❒	2	❒ 1	❒ 0	❒	0

7. In your current cross-craft training, ✔ whether you are learning:

N = 15

more than expected	❒ 2
about what you expected	❒ 11
less than expected	❒ 2

8. Please ✔ whether you are **mostly satisfied** or **mostly dissatisfied** with the cross-craft training for each of the following factors:

N		Mostly satisfied	Mostly dissatisfied
14	Instructional materials/ mock-ups used	❒ 9	❒ 5
14	Methods of presenting information	❒ 9	❒ 5
14	Skills taught	❒ 12	❒ 2
14	Level of skills developed	❒ 11	❒ 3
14	Means of evaluating trainee knowledge/skills	❒ 10	❒ 4
14	Materials employed	❒ 12	❒ 2
13	Tools/equipment used	❒ 10	❒ 3
13	Training facilities provided	❒ 9	❒ 4
1	Other (please specify): _____	❒ 0	❒ 1

9. What are your immediate career plans? ✔ only one.

N = 19

Work locally in the trowel trades	❒ 13
Seek employment in another trade	❒ 0
Work in the trowel trades in another jurisdiction	❒ 0

Take more cross-craft training ❒ 0

Quit working in the trades ❒ 0

Other (please specify):

_____ ❒ 5

10. What are your long-range career plans? ✔ all that apply.

N = 19

Get more craft training ❒ 13

Go into business for myself ❒ 8

Go back to school/college ❒ 8

Become a craft instructor ❒ 7

Become a master mason ❒ 14

Become a foreperson/supervisor ❒ 9

Other (please specify):

_____ ❒ 4

11. Would you be willing to work at a regional site that would require you to live away from home for an extended period?

N = 19

Yes ❒ 12

No ❒ 7

12. Do you have any suggestions for improvement of:

(a) Apprentice training?

(b) Upgrading?

(c) Cross-craft training?

(d) Other (please specify)?

Comments from: survey7

-Comment #: 1

Two weeks/yr. is a joke!

Estimating/blueprint reading

Blueprint reading

No school when I was apprentic

-Comment #: 2

Inform. on other bldg. trades.

Welding

Restoration

-Comment #: 3

Work placement not up to par.

-Comment #: 4

Self employment

Do stonework in otherjurisdict

Hope to continue in trade

Work red brick & refractory

Retirement

-Comment #: 5

Stay busy in my chosen field.

CompleteConst.Engr.Tech.degree

College credits in bldg.trades

More on-the-job training

Suggestions from: survey7

-Suggestion #: 1

Make PCC mandatory like other trades.

Get top-notch instructors.

Get highly motivated people;if not excited about trade find those who are.

Include welding at this stage rather than later as a journeyman!

Focus more on the basics of the trade; more print reading learning needed.

Training well presented; I learned bricklaying techniques there.

Explain a lot more of the cut's arches, corbles, etc.

I have heard training has improved since I was there.

More layout and blueprint & dimensions-math;hands-on separate from bluprint

More blueprint reading & cost assessment on brickwork & related math.

-Suggestion #: 2

Stonework---not for everyone, but some would find it useful!

Upgrading apprenticeship skills beneficial to employers

Make many of the upgrade classes mandatory instead of voluntary.

Need a lot more hands on.

Important to keep bricklayers & PCCs up-to-date & abreast on recent changes

-Suggestion #: 3

Am studying terrazzo to gain knowledge thereof in addition to my tile trade

Keep offering more cross-training opportunities.

Necessary to know something about other trowel trades to be more valuable.

Needed to expand skills such as welding, surveying, instruct., supervising.

Important to broaden skills & be a more valuable employee to any contractor

-Suggestion #: 4

Residential; fireplaces; stonework(rubble,cobble,field);complete masonry.

Let PCCs learn brick & stone due to merges of other locals within IU.

Unfair work policy---some get more hrs.;no training mock-ups;B.A. sucks.

Union men need to stick together&each do own trade & not steal others'work!

Local unions & IMI need to get together to form ONE health&welfare program

Keep up job placement to make the most of time & $ vested in the training.

APPENDIX F

Craft Instructor Survey

International Masonry Institute
Regional Training Demonstration Program
Craft Instructor Survey
N = 23

Name: Social Security No.:

BAC No.: Primary Craft:

Number of years experience: Trowel trades 29.65 (Average) years; N = 23 Craft instruction 9.27 (Average) years N = 23

---

1. Please indicate the type of course(s) you are currently instructing:

N = 23

Pre-job	❒ 10
Related instruction	❒ 15
Cross-craft	❒ 8
Journeyman advanced	❒ 7
Foreman	❒ 4
Master mason	❒ 2
Craft instructor	❒ 7
Supervisor	❒ 2
Estimator	❒ 3
Site safety	❒ 8
Other (please specify):	
_____	❒ 8

2. Please ✔ whether you are **mostly satisfied** or **mostly dissatisfied** with each of the following classroom aspects of the A&T program:

N		Mostly satisfied	Mostly dissatisfied
23	General content	❒ 22	❒ 1
23	Goals and objectives	❒ 23	❒ 0
23	Extent of upgrading to keep current with new technology/training ideas	❒ 20	❒ 3
23	Specific performance objectives	❒ 21	❒ 2
23	Performance standards	❒ 23	❒ 0
23	Use of instructional time	❒ 22	❒ 1
22	Written instructional materials	❒ 19	❒ 3
23	Performance related examples and problems	❒ 22	❒ 1
23	Methods for presenting information	❒ 20	❒ 3
23	Use of instructional aids	❒ 19	❒ 4
22	Extent instruction is modified based on learner feedback	❒ 21	❒ 1
23	Learning environment	❒ 21	❒ 2
23	Trainee motivation	❒ 19	❒ 4
22	Transition across time, materials, content and activities	❒ 21	❒ 1

N			
23	Assessment of trainee needs, interest and ability	❒ 21	❒ 2
23	Development of individual's related instruction plan	❒ 22	❒ 1
23	Maintaining discipline	❒ 23	❒ 0
23	Handling disruptive behavior	❒ 23	❒ 0
23	Assessing trainee knowledge and skills	❒ 21	❒ 2
23	Assessing work-related attitudes/values	❒ 21	❒ 2
23	Discussion of evaluation results	❒ 21	❒ 2
23	Certification of skills/knowledges upon program completion	❒ 20	❒ 3
23	Instructor interpersonal communication skills	❒ 23	❒ 0
23	Instructor attending/ responding skills	❒ 22	❒ 1
0	Other(s) (please specify):		
	_____	❒ 0	❒ 0
	_____	❒ 0	❒ 0

3. Please ✔ whether you are **mostly satisfied** or **mostly dissatisfied** with each of the following administrative/support aspects of the A&T program:

N		Mostly satisfied	Mostly dissatisfied
22	Instructional materials/mock-up	❒ 16	❒ 6
21	Tools/equipment	❒ 19	❒ 2
22	Classroom(s)	❒ 21	❒ 1
22	Building and grounds	❒ 20	❒ 2
22	Reporting and recordkeeping	❒ 21	❒ 1
19	Budgetary process	❒ 17	❒ 2
18	Funding	❒ 14	❒ 4
22	Administrative policies/procedures	❒ 20	❒ 2
21	Instructor performance expectations	❒ 20	❒ 1
22	Instructor duty assignments	❒ 22	❒ 0
17	Computer support	❒ 12	❒ 5
19	Secretarial/clerical support	❒ 17	❒ 2
18	Public school linkages	❒ 11	❒ 7
19	Community relations	❒ 17	❒ 2
20	Race/gender outreach	❒ 19	❒ 1

N			
19	Related and supplementary instruction	❒ 17	❒ 2
3	Other (please specify): _____	❒ 2	❒ 1

4. Do you have any suggestions for program improvement?

5. Do you have any suggestions for administrative/support improvement?

Comments from: survey6

-Comment #: 1

Welding,stone setting,pre-cast

Blueprint reading

OSHA 30 hr; Outreach Safety

Welding

Blueprint Reading;Masonry Math

Blueprint Reading

Restoration & Preservation

Appren;HSvoc;jourymn upgrading

-Comment #: 2

-Comment #: 3

-Comment #: 4

Related mat'ls are terrible

Suggestions from: survey6

-Suggestion #: 1

Expand more in welding & precast fields;more upgraded programs for journmen

Better funding.

Better evaluation of students by BAC Locals before they go to the schools.

Should acknowledge a letter of thank you sent from sponsoring trades.

Workshop too ideal;need more realistic settings--footings,scaffolds,outdors

More intensive promotional effort toward increasing enrollment.

Have Sat. classes as difficult to work & then travel for a 3-hr.night class

Continuous training at school for all trades and journey person upgrading.

Followup apprent.for work done&mat'ls used;emphasize basics+advance classes

Books are terrible for areas; plan reading & estimating mat'l very poor.

-Suggestion #: 2

Teach fewer non-union people;support areas going OK--fewer drastic changes.

Made suggestions after last seminar & no one showed any concern.

[redacted] very supportive of program &maintains excellent communication

Should have a better communication between administration & instructors.

JAC meet with instructors;petty cash fund;make ordering mat'ls easier.

Have qualified person for apprent.training&jouryman upgrading for highgoals

-Suggestion #: 3

-Suggestion #: 4

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APPENDIX G

Business Agent Survey

International Masonry Institute
Regional Training Demonstration Program
Business Agent Survey

N = 23

Name:

Local: Address:

---

1. How many apprentices is your local currently supporting? 10.96 (Average) N = 23

2. How many apprentices does your local anticipate supporting in:

N		
18	6 months 9.00	(Average)
16	1 year 17.69	(Average)
9	5 years 15.56	(Average)

3. Please indicate whether you are **mostly satisfied** or **mostly dissatisfied** with apprentices and apprenticeship training with respect to:

		Mostly satisfied	Mostly dissatisfied
19	Craft skills	❒ 18	❒ 1
19	Related knowledge and theory	❒ 15	❒ 4
19	Work attitudes/values	❒ 16	❒ 3
19	Communication/literary skills	❒ 14	❒ 5
18	Gender/race balance	❒ 15	❒ 3

N			
19	Availability when needed	❒ 18	❒ 1
19	Length of apprenticeship training	❒ 19	❒ 0
18	Responsiveness to new technologies	❒ 13	❒ 5

4. Please ✔ how critical you consider apprentice pre-job training to be.

N = 21

Highly critical	❒ 9
Critical	❒ 11
Not critical	❒ 1
No opinion	❒ 0

5. Please ✔ the importance you attach to training as an organizing tool.

N = 21

Highly important	❒ 15
Important	❒ 4
Not important	❒ 1
No opinion	❒ 1

6. Do you have any suggestions for improvement of:

(a) Apprentice training?

(b) Upgrading?

(c) Cross-craft training?

(d) Other (please specify)?

Comments from: survey5

Suggestions from: survey5

-Suggestion #: 1

Have blueprint instructions available rather than relying on vo-tech school

If work does not pick up it is not practical to have any more--we need work

More of a standardized program

Make all appren.continue school to become full pledge mechanics--hands-on

Have annual return trips to training centers by apprentices.

Apprentice training is only part of the answer to our problems.

Need to teach how and why union came to be.

There is a need for more funds.

Local [redacted] does not have active appren.program but new one being developed

Cross training apprentices in other branches of the trade.

-Suggestion #: 2

Safety & first-aid classes to be OSHA approved.

Upgrade present journeymen with past methods used to install ceramic tile.

Needed with change in application & new & different kinds of materials.

Upgrading---very important.

-Suggestion #: 3

Should learn welding and burning and surveying.

Contact other trowel trades & make them aware of our centers.

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Cross-craft training---if we are to survive this will be one of the ways.

Cross-craft training---very important

Need cross-craft training.

-Suggestion #: 4

No benefits to local area([redacted]) from IMI contributions-like we're forgotten

[redacted] lacks apprentices but working to correct.IMI doing great job.

Instill appreciation & devotion to craft & reaffirm traditional values.

More schools for foreman training.

Need to teach the importance of organizing.

Apprenticeship, upgrading, cross-craft critical to combat non-unionism.

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APPENDIX H

Masonry Contractor Survey

International Masonry Institute
Regional Training Demonstration Program
Masonry Contractor Survey
N = 19

Company: Address:

Number of years a signatory contractor: 23 (Average) years N = 18

---

1. How many apprentices do you generally employ on an annual basis? 1.25 (Average) N = 16

2. How many apprentices do you anticipate you will require in:

N		
11	6 months	1.73 (Average)
14	1 year	4.00 (Average)
11	5 years	7.55 (Average)

3. Please ✔ whether you are **mostly satisfied** or **mostly dissatisfied** with apprentices and apprenticeship training with respect to:

		Mostly satisfied	Mostly dissatisfied
16	Craft skills	❒ 9	❒ 7
15	Related knowledge and theory	❒ 7	❒ 8
16	Work attitudes/values	❒ 8	❒ 8
16	Communication/literacy skills	❒ 7	❒ 9
16	Availability when needed	❒ 12	❒ 4

N			
14	Responsiveness to new technologies	❒ 8	❒ 6
16	Length of apprenticeship training	❒ 12	❒ 4
16	Supervision required	❒ 10	❒ 6
16	Overall cost-effectiveness	❒ 11	❒ 5

4. Please ✔ whether you are familiar with the **International Masonry Institute** (IMI) Apprenticeship and Training Program:

N = 19

Yes	❒ 12
No	❒ 5
Please send more information	❒ 6

5. Do you have any suggestions for improving apprenticeship training?

Comments from: survey8

Suggestions from: survey8

-Suggestion #: 1

Teach increasing production!Must have good work attitude to keep on payroll

Our training programs and trainees have done a fine job!

All that is available to us is on-site training from older skilled masons.

Use cement finishers.To my advantage to train my own than send for training

Vary instructors;separate courses on house,school,commer;work before appren

Local training program---[redacted]

Require apprent. to work as bricktender to help understand what mason does.

Create more union jobs.

Need help to reorganize in [redacted] &then start training prog.Use open-shopmasons

Need younger men! Over 25 too set to learn things applying to masonry trade

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APPENDIX I

Unsolicited Letter of Support

MASONRY CONTRACTORS OF N.J., N.J. CHAPTER I.C.E.
RD #1, BOX 287, RT. 33 & APPLEGARTH RD., HIGHTSTOWN, N.J. 08520

TEL (609) 426-0055 FAX (609) 426-0595

January 4, 1994

JAN 10 1994

Mr. Dominick Pulsinelli
IMI
Rt. 33 & Applegarth Rd.
Hightstown, N.J. 08520

Dear Mr. Pulsinelli:

On behalf of our Association, which is comprised of union masonry contractors, manufacturers and suppliers to the industry, I'd like to take this opportunity to express our thoughts and appreciation for the ongoing efforts of yourself and the Apprentice Instructor, Mr. Dave Kensler, in training and educating the students in the trowel trades.

As you know, during these difficult economic times it is becoming increasingly difficult for the union contractor to remain competitive in today's market.

It is our belief that one way to help ensure a stronger share of the market is to focus on training. An extensive training program, such as the one conducted by IMI, that combines theory, mathematics, blueprint reading, videos, safety education, and the building of mock up walls can only result in competent, highly skilled individuals.

Additionally, I'd like to thank you and Mr. Kensler for allowing, and encouraging, our Association to take our members and prospective members on tours of the facility. These tours let them see for themselves the training that takes place in the shop and they can walk away with confidence knowing the significant role that you play in building a better, stronger future for the union masonry contractor.

Sincerely,

Joseph Speranza, Jr.
President

JS:cs

cc: Tommy Uzzalino
Dominic Spano
Joseph Speranza, Sr.
Robert Bonanni
Jerry Browning